August, 1952

WOOD and Wood products

THE NATIONAL MANAGEMENT AND PRODUCTION MAGAZINE
OF THE $9 BILLION FOREST PRODUCTS INDUSTRY

Earl W. Tinker

See Page 21—WOOD SALUTES

Furniture

Scene at Morgan Manufacturing Company. To see lumber handling methods turn to page 30.

Utilization

On page 24 Lyle Watts tells how utilization cures forest management problems.

Finishes

Methods that control furniture checks is told on page 32

Equipment

To tell what variable speed control to order turn to page 28.

See These Features

- Giant Trucks
- Production Setup
- Modern Dry Kiln
- Light Boxes
- News and Trends
- Names and Events
- Markets
- New Products

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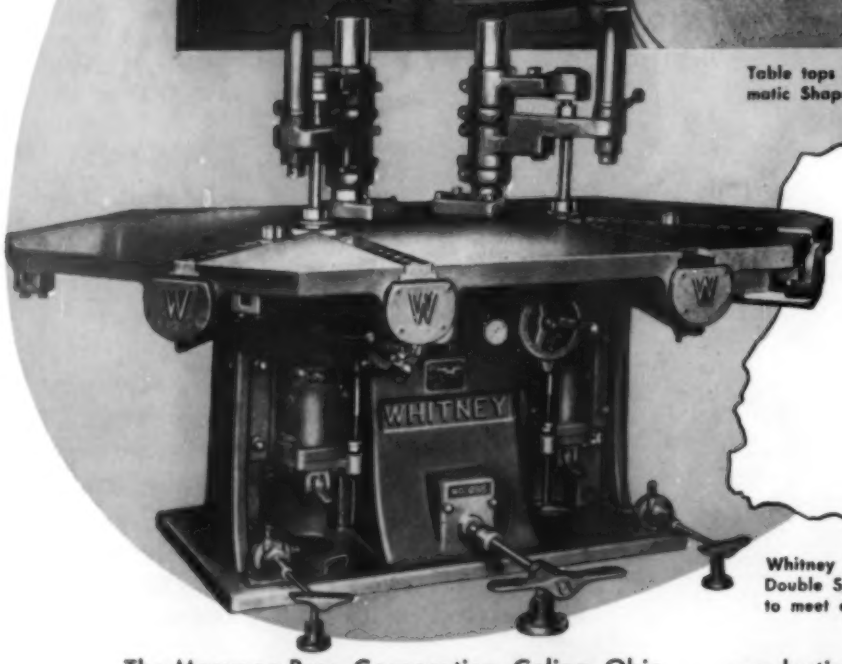
WHITNEY AUTOMATIC SHAPERS

"Standard equipment for several years"

Table tops being smoothly shaped on Whitney 2-spindle Automatic Shaper in plant of Mersman Bros. Corp., Celina, Ohio.



Whitney 295 Automatic Shaper. Single and Double Spindle Models and three motor sizes, to meet every shaping requirement.

"... your Automatic Shapers have been standard equipment for the past several years. We are pleased with their high quality of work and low maintenance cost".

The Mersman Bros. Corp.

Walter J. Mersman, Pres.

The Mersman Bros. Corporation, Celina, Ohio, foremost manufacturers of tables, look with pride to the dependable, low cost operation and the high quality of work received from Whitney Automatic Shapers.

Whitney Automatics are making similar records in the leading woodworking plants of the country getting out fast, smooth, uniform production with a minimum of downtime. Whitney Automatics have the advantage of quick set-ups and rapid change-overs making them adaptable to both long and short runs. Investigate them today for your important shaper work.

Ask for Shaper Bulletin M8.

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WINCHENDON, MASSACHUSETTS, U. S. A.

WOOD and wood products

Volume 57 No. 8

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(advertisement)

Mauk Talk

Style note: I see women's clothes have fewer buttons on them than they used to have—and women's buttons have fewer clothes on them than they used to have.

• • •

He: "Honey, where can I get hold of you?"

She: "I don't know. I'm awfully ticklish."

• • •

Have you heard this one? Dolores gushed, "I had the most wonderful time last night. I met this new man and he asked me up for a delightful dinner in his apartment. After dinner he showed me ten mink coats and told me to choose one for myself!"

"How exciting!" responded Beatrice. "And what did you have to do?"

"Just shorten the sleeves," said Dolores.

• • •

It's all right to tell a girl she has pretty ankles or even pretty legs but don't compliment her too highly.

• • •

We don't claim to cure your psychological needs or your social needs but we're experts at meeting your industrial lumber needs.

Let us know your problem in detail —what the main project is going to be and end uses too. You'll be pleasantly surprised at the helpful attention we give your order when we know all the facts.

If you have problems in the lumber region, don't call a doctor. Call MAUK.

• • •

Simple Celia says a chiropractor is a guy who gets paid for what other guys get slapped for.

• • •

Statistics show that Yale graduates have 1.3 children while Vassar graduates have 1.7. That only goes to show that women have more children than men.

• • •

MAUK Seattle Lumber Co.
Seattle 5, Washington
The C. A. Mauk Lumber Co.
Toledo, Ohio

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Pull in the BIG ONES with GAMBLE BROTHERS

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AUGUST 1952

WOOD and wood products

VOL. 57, NO. 8

Industry News and Trends

Furniture

Furniture Summer Market: The 1952 Chicago Summer Furniture market saw the introduction of a tremendous variety of new styles and new lines. For the first time, the effort of the nation's finest designers was seen in the merchandise planned for the mass market, and it was apparant that far greater value has been built into these lines. Registered buyer attendance of 18,000 was 12 percent greater than last year's summer market.

On business in general, manufacturer's reports varied, some up, some down, with the majority reporting middle-of-the-road success. Firms with strong designs at best-selling price levels did an exceptionally good business. The general pattern of buying remained cautious and selective. However, there was a feeling of optimism among exhibitors based on the retailers assurance that they would buy after returning to their homes and sampled the public's response.

Styles: More than 60 percent of the 2,000 new styles were modern. Provincial continued to rival traditional with informal and urban adaptions of provincial favored. The period styles especially 18th Century and American Colonial, which accounted for 40 percent of the offerings during war years, have in varying degrees yielded to contemporary and ranch house influences. The widespread popularity of ranch house type furniture was one of the significant trends in the market. The grotesque and ugly virtually disappeared and "commercial" or heterogeneous furniture were less than 5 percent of the offerings.

The problem of TV was solved with graceful individual living room pieces and groupings designed for nobility and balance. More room dividers and double duty pieces for smaller homes or to combine one-two-three rooms was a value feature of the market. Continuing the trend of the last market, more of the so-called decorator's pieces were offered in the middle and the lower priced groups.

California inspired furniture geared to America's wider practice of indoor-outdoor living was much in evidence. The popularity of new woods and wood combinations and contrasts and the use of plastics to capture wood tones was the highspot of the show. Designers have swung from greyed woods to live beige ranging from ash to deeper than honey.

Case goods abounded with fresh new merchandise every bit as decorative as the finest type living room furnishings. Price was the big consideration on occassional furniture because dealers expect to use these pieces at a price to get customers into their stores this year.

To combat the rise in freight rates many lines featured an extensive collection of knocked down pieces. Everything from a slab with four legs to the complicated structure of a Duncan Phyfe base will arrive at the retail store collasped.

Ceiling Price Changes

Softwood Plywood–Hardwood Faced: Ceiling Price Regulation 153 effective June 30 places ceiling prices on direct mill sales of most standard grades and sizes of softwood plywood faced with hardwood produced west of the Rocky Mountains. Plywood faced with Birch, Maple, White Oak, Walnut and African Mahogany, are at approximately current market levels. Phillipine Mahogany is about 14 percent higher than prices prevailing May 24 to June 24, 1950. The regulation makes provision for special grades. The industry consists of eight principal producers. In 1950 production was 70,000,000 sq. ft. of which 28,000,000 was faced with Philippine Mahogany.

Western Pine Ceilings Ordered: Dollars-and-cents manufacturers' ceilings on standard sizes and grades of lumber and railroad ties cut from western pine and other softwood species in 12 Western States were announced by OPS. The order is contained in Regulation 152, effective June 30, 1952.

The regulation applies to an annual production of about 7,500,000,000 board feet of lumber valued at about $900,000,000, representing roughly one-fifth of the lumber produced in the United States.

The ceilings established by the new regulation are within the range of ceilings prevailing under the General Ceiling Price Regulation (GCPR) which froze the prices of individual sellers on January 26, 1951.

New Appalachian Ceilings: On June 27, the Office of Price Stabilization announced dollars-and-cents ceiling prices for manufacturers of hardwood lumber in the Appalachian area. They are prescribed in Ceiling Price Regulation 151, effective July 2, 1952. It supersedes the General Ceiling Price Regulation (GCPR) for the products covered.

The ceiling prices are spelled out for standard grades and dimension for eighteen species commonly cut in the area, which includes West Virginia and parts of Kentucky, Tennessee, Georgia, North Carolina, Virginia, and Maryland. The ceilings are at the average levels prevailing under the GCPR.

End Controls on Mahogany: Price controls on true mahogany logs and lumber were suspended, effective June 30, 1952, according to an announcement by the Office of Price Stabilization. The order covers importations into the United States, mainly from Africa, Mexico, Central and South America. The action is taken in Supplementary Regulation 110 to the General Ceiling Price Regulation (GCPR).

However, buyers and sellers are still required to keep records of purchases and sales under the provisions of GCPR, and report to OPS every quarter. The suspension does not apply to logs and lumber commonly designated as Philippine mahogany, including lauan, tanguile, almon and bagtikan, which are still subject to price control under GCPR.

Wood Containers

Boxes and Crates: Production of wooden boxes and shook in the United States in the first quarter of 1952 was 7.2 percent under the volume of the comparable quarter of 1951, according to reports from 144 manufacturers, as compiled by the National Wooden Box Association.

Reports from 66 manufacturers operating east of the Rocky Mountains show a decline of 41.1 percent. West of the Rockies, 78 producers experienced a decline of 3.2 percent.

Twenty manufacturers operating in eastern Washington and northern Idaho, known as the Inland Empire, reported an increase of 3.2 percent due to advance purchases of apple shook in the face of favorable crop prospects as compared to 1951.

Ammunition Boxes; Peak demand for ammunition boxes under present schedules will be reached during the first half of 1953, according to Kenneth S. Macy of the Ordinance Ammunition Center, Joliet, Ill. This is a somewhat changed schedule as last January the peak was expected to be reached the last half of 1952.

REDCO
PROFILE GRINDER
Saves up to 50% in time and 40% in labor costs
Assures simplified . . . accurate . . . fast . . . economical . . . in-plant sharpening and producing of cutters and knives
TOOL MEN in furniture factories and other woodworking plants can keep cutting tools at their productive best with a REDCO Profile Grinder right in their shop.
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This free REDCO bulletin illustrates and describes in detail the REDCO Profile Grinder. Write for it today.
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Lumber

Movement, Consumption, Stocks for 1st Quarter: The lumber market was characterized by a feeling of uncertainty during the first quarter of 1952, according to the 84th quarterly report of the Lumber Survey Committee. International affairs, the domestic political situation, and the confused state of the economy contributed to the "wait and see" attitude evident in all phases of the industry. Lumber production in the first quarter totalled an estimated 8,698 million board feet, while shipments were 1.4 percent above this figure. Although gross mill stocks showed a slight decrease during the first quarter of 1952, they were still well above inventories of a year ago. Unfilled order files at the mills on March 31, 1952, were 20.2 percent below the corresponding date of last year.

Gross mill stocks of lumber on March 31, 1952 totalled an estimated 8,211 million board feet, an increase of 28.4 percent above stocks on March 31, 1951. Although mill stocks decreased 1.8 percent during the first quarter of 1952, they were an estimated 1,815 million board feet above the level of March 31, 1951. Retail yard lumber stocks, as reported by the National Retail Lumber Dealers Association, were an estimated 5,368 million board feet at the end of March, 1952. Retail stocks showed a gain of 6.2 percent during the first quarter, with seven of the nine retail regions sharing in the increase.

Prices: The Wholesale Price Index issued by the Bureau of Labor Statistics indicated that the average price of lumber increased only 0.2 percent during the first quarter of 1952. Softwood lumber prices showed an average increase of 1.0 percent, while hardwood prices declined 1.5 percent during the quarter. The Index registered an average of 120.4 in December, 120.4 in January, 120.8 in February, 120.7 in March and 121.1 in April (1947-1949=100).

The average realization of Douglas Fir shipments in March 1952, compiled by the West Coast Lumbermen's Association, was $78.99; as compared with $78.85 in February 1952; and $83.97 in March 1951.

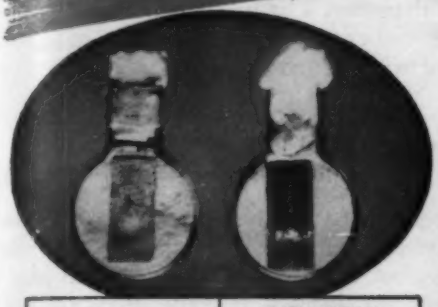
Lumber production during the first quarter of 1952, although 3.5 percent below the corresponding period of 1951, compared favorably with first quarter volumes of earlier years. Based on preliminary reports of the regional

(*Continued on page* 14)

It's Profitable to Make Millwork And Lumber Last Longer!

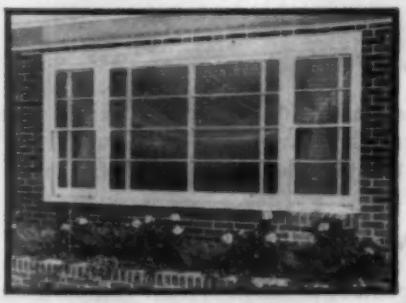
WOODTOX 120

5% PENTA WOOD PRESERVATIVE WITH WATER REPELLENT



UNTREATED	UPPER PORTION Monsanto Brush Treatment LOWER PORTION Untreated
SECTIONS FROM SOUTHERN YELLOW PINE 2 x 4	

Two 2 x 4 sections exposed to decay organisms in Kolle flasks. Left, untreated section; right, upper part of section brush-treated with WOODTOX on which decay cultures can't be made to grow, even in the laboratory.



In installations up to 15 years old, sash and doors continuously exposed to severest decay and weathering conditions show no deterioration.

Beverage cases last 3 or more times longer by actual test when treated with WOODTOX. Repair costs are virtually nil—cases are easier to keep clean and sanitary.

Applications of WOODTOX to make wood products last longer are practically endless. Learn what WOODTOX can do for you.

WOODTOX is furnished in cans, drums, or tank cars for industry use; or 1-gallon and 1-quart cans in display cases for retail sale.

WOOD TOX — *What It Is*

WOODTOX is a Pentachlorophenol base preservative plus perfected water repellents in a quick evaporating, penetrating petroleum carrier, providing many desirable characteristics for imparting longer life to wood and wood products. The superiority of PENTA for protection of wood against fungi, termites and other wood destroying insects has been proved by 15 years of use in every conceivable application.

WOODTOX is a clear, clean, non-staining oil solution for treatment of millwork and lumber products. It conforms to or excels National Woodwork Manufacturers Association standards for water repellent efficiency. Also complies with NWMA and Western Pine Association preservative standards. It is widely used by the Army (U. S. Engrs. Spec. 3-186) for treatment of truck bodies, etc.; by the Navy (Spec. MIL-P-906A) for carrier decks, etc.; and the Air Force (Spec. AN-P-76) for plywood, etc.

WOOD TOX — *What It Does*

WOODTOX, in addition to preventing decay by toxic action against living organisms, also resists staining, swelling, warping, shrinking, checking, mold and mildew. WOODTOX also acts as a primer that deters the blistering and peeling of surface finishes —and, after several days' drying time, will not impair the handling or paintability of wood.

WOOD TOX — *A Tremendous Sales Potential!*

Multiplying the service life many times of sash and doors, millwork, flooring, boxes, plywood and innumerable other lumber items, is a sure-fire formula for improving product acceptability—for injecting new life into slumping merchandising plans—and for boosting sales among dealers and users. No matter what you make from wood, the relative low cost of WOODTOX offers you unlimited possibilities for greater sales and greater profits.

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Run to Detail

•

QUALITY BUILDERS' REQUIREMENTS

Mixed cars comprising hardwood flooring in Straight-line standard strip and Unit Wood Blocks in oak, beech, pecan; Random Width Oak Plank—each finished or unfinished. Oak stair treads, risers, thresholds. Arkansas Soft Pine trim, mouldings, finish, yard stock.

BRADLEY BRAND

LUMBER COMPANY of Arkansas • WARREN ARKANSAS

Wood Puzzlers

This department is designed to help you find an answer to your production and sales problems. Send us the facts. Experience has shown that some other readers can help.

Curved Plywood Backs of Fir—No. 55

We have an inquiry for curved plywood backs of Fir, to be used for dinette chair backs. These backs would be ¼-inch thick, 3-ply, 11 inches high by 18 inches wide, with a radius of 20 inches by 21 inches in the 16-inch diameter. The grade could be CD Interior. Any help you can give us as to a possible source of this material will be greatly appreciated. (N. Y.)

Sale of Canadian Wood Products in the United States—No. 56

Since the opening of this Consulate office in....we have been impressed with the possibilities of the sale of Canadian lumber (soft and hard) and wood products such as veneers, birch and maple plywood and certain turned hardwoods. We would like to get in touch with possible importers of these products in Alabama, Tennessee, North and South Carolina, Georgia, Florida, Mississippi, Louisiana, Texas, Oklahoma and Arkansas. We would appreciate it if you could put us in touch with importing brokers who could represent Canadian mills and manufacturers of these products. (La.)

Veneer Thickness Gauge—No. 57

We are in the market for a veneer thickness guage, as well as a wire thickness guage. Can you refer us to some company that handles these items? (Texas)

Small Wood Minnows—No. 58

We wish to contact a company that can turn small wood minnows, approximately one and three quarters of an inch long. We will furnish the necessary blanks. Or we will buy the proper lathe and make same ourselves. We need 250,000 or more now. If you can direct us to proper sources, we will send samples for trial and inspection. (Ark.)

All-Wood Shovel—No. 59

We wonder if you would help us locate the manufacturer of an all-wood shovel. This item is made from one piece of wood—no metal or joiners of any type. It is about 36 inches long. This type of shovel is used for handling explosives. (Pa.)

If you have any problem of wood utilization, or cannot find the kind of material or machine for your particular purpose, SEND IT IN to the editor and we will put it in the WOOD PUZZLERS section.

it's OK let'er go!

and cut costs with
OK SLOTTED PLANER KNIVES

That's right, mill after mill has told us that in addition to standing up under fast heavy speeds on the roughest, knottiest, sandiest lumber without losing their keen edges, these knives actually cut costs. OK PLANER KNIVES are made of the finest steel, hardened and tempered for the toughest edge you've ever seen. OK uniformity is so consistent that knives from different sets may be used together and still the lumber will have smooth and perfect finish without marks.

All knives made to tolerances of ± .0015 thickness and parallelism. Sets balanced to within a fraction of an ounce of each other.

OK carbon alloy knives available for ordinary woodworking

OK No. 4 welded high speed knives for soft and green wood

Manufacturers of:
PLANER KNIVES
VENEER KNIVES
CHIPPER KNIVES
HOG KNIVES

GO WITH OHIO GREEN

THE OHIO KNIFE CO.

CINCINNATI 23, OHIO

(*Continued from page 8*)

lumber manufacturers' associations, first quarter lumber production totalled an estimated 8,698 million board feet, 5.5 percent less than in the fourth quarter of 1951.

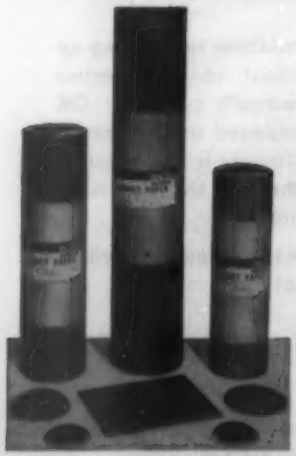
Estimated national lumber consumption, including exports, during the first quarter of 1952 was 9,021 million board feet.

Construction

Trussed Rafters Mean Sales: Lumber manufacturers have realized well over three million dollars in sales of standard framing lumber used in prefabricated trussed rafters for the single family, one story homes, and garden apartment housing units built in the past six years, according to A. K. Smith, sales manager of the Timber Engineering Co., Washington, D. C.

As of June 1, over 100,000 housing units have been built with these trussed rafters, requiring 75 million board feet of lumber, or nearly 4,000 carloads. In addition, trussed rafters have been specified in over 8,000 units to be built, for which an approximate 6 million additional board feet of lumber will be required.

"On the JOB" tests show savings over premium priced abrasives...



...with MID-WEST RESIN SEAL GARNET

Customers tell us that "on the job" tests have proven Mid-West Resin Seal Garnet to be superior to other coated abrasives costing much more. That is why we urge you to make a test run with Mid-West and compare it with the brand you are now using.

Designed specifically for the woodworking industry, Mid-West Resin Seal Garnet material is made with medium or heavy weight paper and all cloth backings, and flexibilities in belts, sheets, rolls or discs . . . or in any other standard form.

Why not let us show you how we can cut costs on your sanding operations? There is a Mid-West field representative ready to serve you. Write us for his name.

MID-WEST ABRASIVE CO.
EXECUTIVE OFFICES:
OWOSSO, MICH.

MID-WEST QUALITY ABRASIVES

Plants in Owosso, Michigan and Rochester, Pennsylvania

Wood Roof Gutters: According to an 11 page booklet just published by the government's Housing and Home Finance Agency, roof gutters may be quite satisfactorily constructed from wood. Wood gutters and downspouts for new homes and replacement purposes are sound, inexpensive and attractive. With proper installation and reasonable maintenance they are durable. "To illustrate," the booklet continues, "when the White House was remodeled in 1927, a wood gutter was removed which had been in use 110 years. It was still sound and serviceable." Tin gutters and downspouts won't last 110 years—here's a market that can be regained for wood with a good product properly marketed and merchandised. Those interested in obtaining copies of this booklet, "Roof Gutters" may send 10 cents to the Department of Documents, Government Printing Offices, Washington 25, D. C.

Total volume of construction during the first quarter of 1952, based on floor area of contract awards in 37 Eastern states, was 5.0 percent less than in the fourth quarter of 1951, and 22.8 percent less than in the first quarter of 1951, according to the F. W. Dodge Corporation. March 1952 volume on the same basis was 40.9 percent greater than in February 1952 but 9.1 percent less than in March 1951.

Housing

First Quarter Housing Starts: According to preliminary reports published by the Bureau of Labor Statistics, 239,900 new non-farm dwelling units were started during the first quarter of 1952, 7.8 percent less than in the corresponding period of 1951, but 6.5 percent more than in the fourth quarter of 1951. Non-farm housing starts during April 1952 were estimated to total 108,000 units, 10.2 percent more than March 1952 starts, and 12.3 percent more than in April 1951.

Labor

Forest Products Employees: More than 60,000 persons work in the wood using industries in Wisconsin, according to estimates of the Department of Conservation. Income for 1950 of those employed in the forest industries of the State was estimated at $200 million. The value of wood products sales was said to be in excess of $480 million. There are 52 pulp and paper mills in Wisconsin and about 1800 sawmills.

"They always stay true-to-pattern, too!"

Talk to any user of Jones & Orth Cutter Heads and you'll hear *plenty* of good reasons why they're enthusiastic about them.

Those who keep the closest check on *both* quality and costs are always our strongest boosters. And—the tougher the job to do, the more likely it is that you'll find Jones & Orth Heads being used!

If YOU want cutter heads that will do a consistently better job—turn out higher quality work, at LOWER net cost—your best bet is unquestionably Jones & Orth.

The way to prove this to your own satisfaction is to install a set of our cutter heads on your hardest working unit, then compare output—and costs!

Write today for new catalog, and name of our dealer nearest you. Address either our Seattle or Memphis branch.

Need specially designed cutter heads? Let our engineers help! Write us in detail. Prompt service!

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CUTTER HEAD COMPANY

385 SOUTH MAIN STREET
MEMPHIS 3, TENN.

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SEATTLE 14, WASH.

Forestry

Cooperative Research in Forest Soils and Genetics: The Crossett Lumber Company, Crossett, Arkansas and the Southern Lumber Company, Warren, Arkansas are cooperating with the Southern Forest Experiment Station in financing substantial basic research in the long neglected subject of forest sod and genetics. The objectives are to develope strains of fast growing, high quality, pest-resistant, and otherwise superior trees adapted to forest lands in Arkansas and other southern states. The study will also determine the physical, biological and chemical properties of major forest soils in Arkansas and adjacent regions, various methods of forest management and the productivity of forest soils. Here is further evidence of the foresighted policy of large forest owners and the sound progress they are making toward maximum yields and sustained production from their timberlands.

Christmas Tree Grading Rules: The Western Washington Farm Forestry Association has setup a Christmas Tree Grading Rules Committee patterned on the West Coast Lumberman's Bureau of Lumber Grades and Inspection to fortify the region's national Christmas tree market. This is a progressive step which could be adopted by all areas marketing a large volume of Christmas Trees.

American Bankers Association has setup a farm woodland committee to work with state banking associations on the problem of woodland loans.

Education

Our Industry Schools: At the FPRS meeting in Milwaukee a meeting of the leading forestry schools was held to discuss the problem of training men that would be more acceptable to industry. Here is a common problem that requires closer cooperation between industry and the colleges. More active industry participation is needed in training qualified personnel on a college level. The colleges and universities are ready and willing to work with industry. Industry needs trained personnel to meet the ever increasing problem of our fast moving industry. It is our sincere hope that the Milwaukee meeting is the first step toward a growing trend in the direction of full cooperation between industry and our forestry schools.

North Carolina State College awarded 20 graduating seniors a B.S. in Furniture Manufacturing and Management. The college is the only one in the nation that offers such a four year course and the first time the school had bestowed the degree. Two other universities offer a furniture option in wood technology departments.

Drexel Furniture Company
DREXEL · NORTH CAROLINA

April 30, 1952

Woodworking Precision Machinery & Tool Company, Inc.
224 Fifth Avenue
New York 1, New York

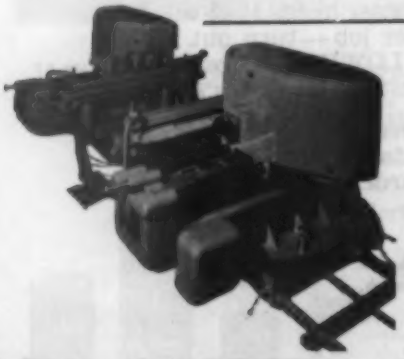
Attention: Mr. Bernard Levere

Dear Mr. Levere:

We have completed almost a full year of operating the Tenko machine in our Marion, North Carolina Plant. Based upon this year's operation, we can definitely report production economies in the construction of mitered case goods. Furthermore, the quality of work is superior when compared with that produced under older methods of doing the same job. All in all, we are well pleased with the operation of the Tenko after a full year's experience.

Very truly yours,
DREXEL FURNITURE COMPANY
Sam W. Freeman
Purchasing Agent

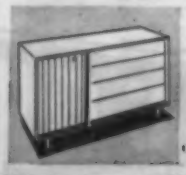
When Tenko goes to work... it performs operations never before possible with other tenoners!



Read the typical letter above and learn how one leading company is achieving higher production at a lower cost with the Tenko, the world's finest high precision double end tenoning machine. Check these outstanding features of the Tenko.

- As many as 3 operations at one time.
- Work is clamped as cutter heads move, giving high precision.
- Quick changeover time.
- Extra pieces such as splines, dowels, etc. eliminated.
- Combination of cutters and cams gives great versatility.
- Wider ranges available for your designers.
- Cutters may pass by piece at 45° providing a mitered mortise and tenon joint in one pass.

This joint accomplished in one pass.



This piece is constructed with the joint illustrated at left.

Investigate the advantages of the Tenko today. Send for circular.

Woodworking Precision Machinery and Tool Co., Inc., 224 Fifth Ave., New York 1, N.Y.

Versatile Machine for Grooves, Joints • Automatic Carvers • Bending Machines • Combination Radial Arm Router and Shaper

WOODICTIONARY

RIPPING

Using the rip saw. Sawing along the grain.

"a top logger and lumberman"

"balanced supplies and needs"

"lifetime of good forestry . . ."

Wood Salutes

With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industry.

Corydon Wagner

Corydon Wagner has had an active and at most times important part since 1914 in the operation of the three-quarter century old St. Paul and Tacoma Lumber Company of Tacoma, Wash., where he was born October 14, 1895.

He took time out to attend Yale University, where he graduated in 1916. He left the Yale School of Forestry in 1917 to join the army.

Wagner has held every job in the St. Paul and Tacoma company from whistle punk to vice president and treasurer, his present title.

He has served with distinction as president of the National Lumber Manufacturers Association, 1950-51; as president of the West Coast Lumbermen's Assn. 1940-41; and as chairman of the Joint Committee of Forest Conservation, 1942-48. His list of business and civic jobs completed is tremendous.

He was one of the original sponsors of the Keep Green program and is generally credited with being the spark plug in the formation of the American Forest Products Industries, Inc., and he was its first chairman.

Wagner is a director of Puget Sound National Bank, president of C. W. Griggs Investment Company and heads, as well, the Wilkeson Company.

Joseph L. Noyes

Joseph L. Noyes stepped from the University of North Carolina into the lumber business and then into the navy in World War II.

In the navy, Noyes' experience in the lumber business, plus a flair for engineering, led to a job in the Bureau of Ships.

During this first tour of duty, Noyes got in on the ground floor of marine laminating and followed its development into maturity.

After discharge from the navy, Noyes took up his duties with the Marshall Lumber Company. He was on the Board of Directors of the Appalachian Hardwood Association. He served actively on a number of association committees.

Noyes, now a Lieutenant Commander, was recalled to Navy service in 1950 to serve in the wooden ship program.

His advice has been constantly sought because of his thorough and practical knowledge of lumber and sawmill operations.

Noyes also worked with the Army Engineers, since they purchase much of the lumber used by the Navy.

In many cases, he has helped review and revise specifications so that a realistic balance would exist between Navy needs and existing timber and lumber supplies.

Earl W. Tinker

Earl W. Tinker has been Executive Secretary and Treasurer of the American Paper and Pulp Association since 1939, and is known as one of America's ablest foresters.

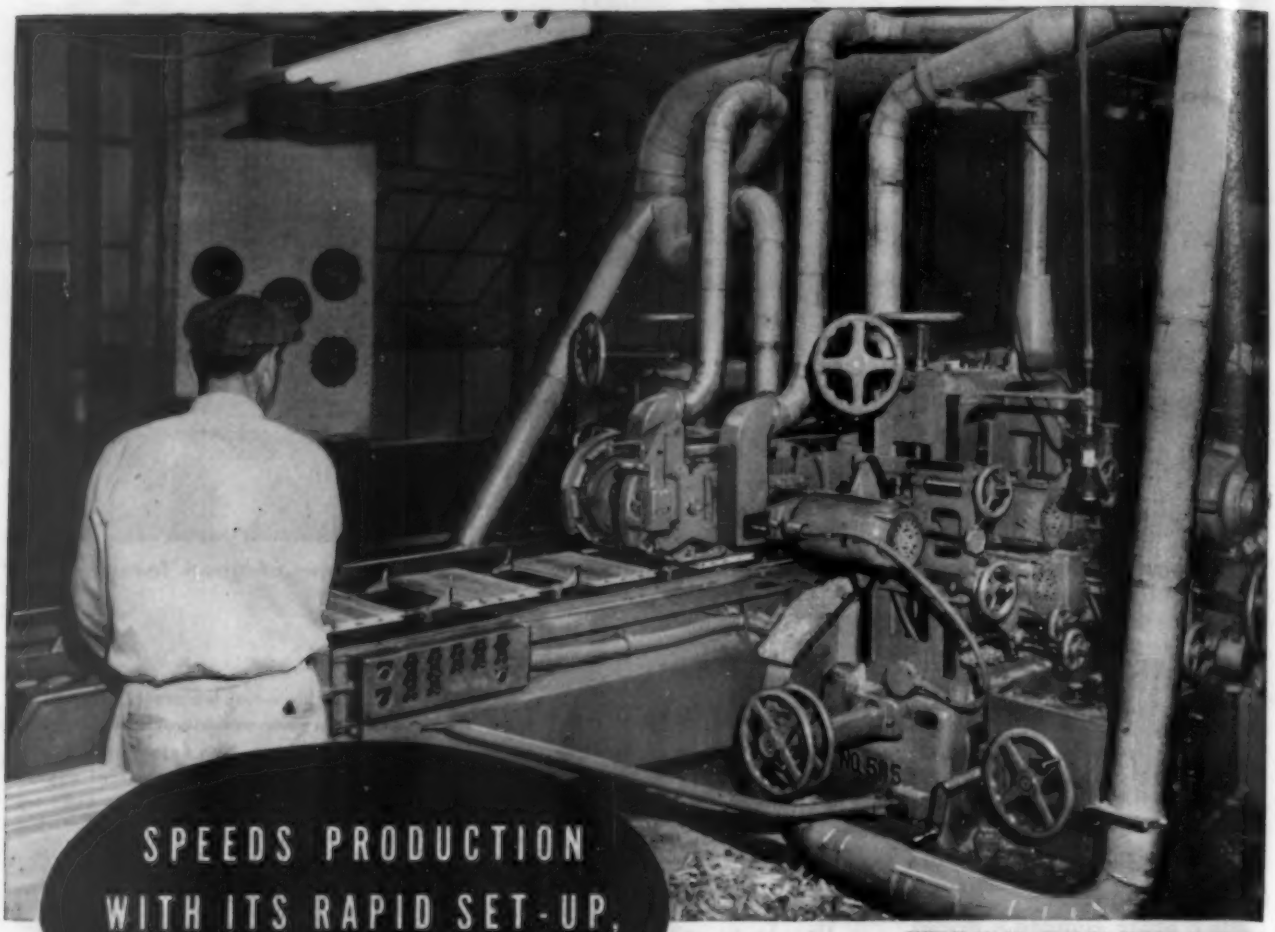
Born in Fenton, Mich. in 1890, the son of a lawyer, he received his B. S. degree in forestry at Michigan State College in 1913, and his master's from Yale University in 1915.

In 1915, Tinker went to the Black Hills in South Dakota as Forest Assistant with the U. S. Forest Service. He then served as Forest Supervisor on a number of forests in Wyoming and Colorado. In 1924 he was transferred to the Denver Regional office as Assistant Regional Forester in Charge of Lands for the Rock Mountain and Lake States Region.

Next, Tinker was put in charge of Region Nine of the U. S. Forest Service. This included the much cutover and burned-over middle western states. Of the nearly million acres replanted under Tinker's direction, 750,000 acres survive and prosper.

In 1936, Tinker was appointed Assistant Chief of the Forest Service.

It was in the fall of 1939 that Tinker left the Forest Service for his present position with the American Paper and Pulp Assn. Since then he has carried on his lifetime campaign for good forestry.



GREENLEE NO. 545 DOUBLE-END TENONER IN OPERATION AT CALIFORNIA FURNITURE SHOPS, LOS ANGELES

SPEEDS PRODUCTION WITH ITS RAPID SET-UP, ACCURACY, FLEXIBILITY

. . . Greenlee No. 545 Double-End Tennoner

Here's what California Furniture Shops, Los Angeles, has to say about their GREENLEE No. 545 Double-End Tenoner, which they purchased in 1948.

"We are particularly pleased with its rapid set-up, accuracy, and flexibility. Since the installation of the No. 545, we have not had a moment's production loss from breakdown or mechanical failure of any kind.

"Production has been higher and the quality of work better. In fact, when the need came for a double-end cut-off saw, we purchased the GREENLEE No. 542 because of the similarity between it and the No. 545 Double-End Tenoner.

"To anyone considering the purchase of a Double-End Tenoner, we cannot recommend the machine too highly."

This is just another example of the satisfaction and important production benefits you, too, can expect from this outstanding machine.

For, as "a woodworking plant in itself," it performs *15 separate operations* swiftly, accurately . . . even processes serpentine and other irregular shapes. And it steals job after job from single-purpose machines to streamline production, lower your costs.

Get complete specifications today . . . ask for Bulletin 545. Greenlee Bros. & Co., 1928 Twentieth Ave., Rockford, Illinois.

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GREENLEE

GREENLEE WOODWORKING MACHINERY: MORTISERS · BORERS · SAWS · TENONERS · PLANERS · SHAPERS · MORTISING & BORING TOOLS

PROPER KILN CONTROL through modern instruments is a must.

How to Operate Modern Dry Kiln

Proper use of instruments plus knowledge of kiln drying principals will help operator turn out higher grade lumber. Part I

by Frank Cook

Moore Dry Kiln Company

Any study of heat and humidity in dry kiln work must make use of certain terms. The meanings of these terms should be clearly understood.

Heat is a common term, rather hard to define, yet a strict scientific definition states that "heat is a form of energy possessed by all bodies".

Latent heat is that energy required to change the state of a body, such as ice to water or water to steam, where as sensible heat is the energy required to cause a temperature change. It is this sensible heat that dry kiln operators use daily in setting kiln schedules, but they are consciously or unconsciously working every day with latent heat and the units of measure of this heat, such as b.t.u.'s or horse power. When trap troubles or improper temperature distribution is encountered or insufficient steam for running the kilns is available, both types of heat—that is, both sensible and latent—are involved.

Dry kiln people are primarily interested in b.t.u.'s and horse power and their application to every-day needs. A b.t.u. is defined as the amount of heat required to raise the temperature of one pound of pure water 1° Fahrenheit from 62° Fahrenheit, and which is sensible heat.

A boiler horse power per hour is equal to 33,472 b.t.u.'s per hour, but is normally figured at 33,000 b.t.u.'s per hour. A horse power is also considered the amount of energy required to raise and evaporate 33 pounds of water, since we will see later that it takes approximately 1,000 b.t.u.'s to change one pound of water to one pound of steam. Figuring strictly from a scientific basis, it will require 970 b.t.u.'s, but for sake of ease of manipulation we normally round this off to 1,000.

The ability to use these terms and apply them is often considered a technical job, whereas it is often important to know how much steam our kilns were using, or how to figure the amount of water that would be available from the kiln condensate for return to the boilers. This can be determined or calculated by using the formula: Horse power per hour equals the gallons of water per minute, times 8, times 60, divided by 33. In this formula 8 represents the number of pounds per gallon, and 60 represents the number of minutes per hour.

It is also possible to determine the number or amount of condensate that is being made available from the kiln by using the formula: Gallons of condensate is equal to the horse power per hour, times 33, divided by the product of 8 x 60. This formula then makes it possible to determine how much condensate would be available, having a known horse power.

Know Bulb Readings

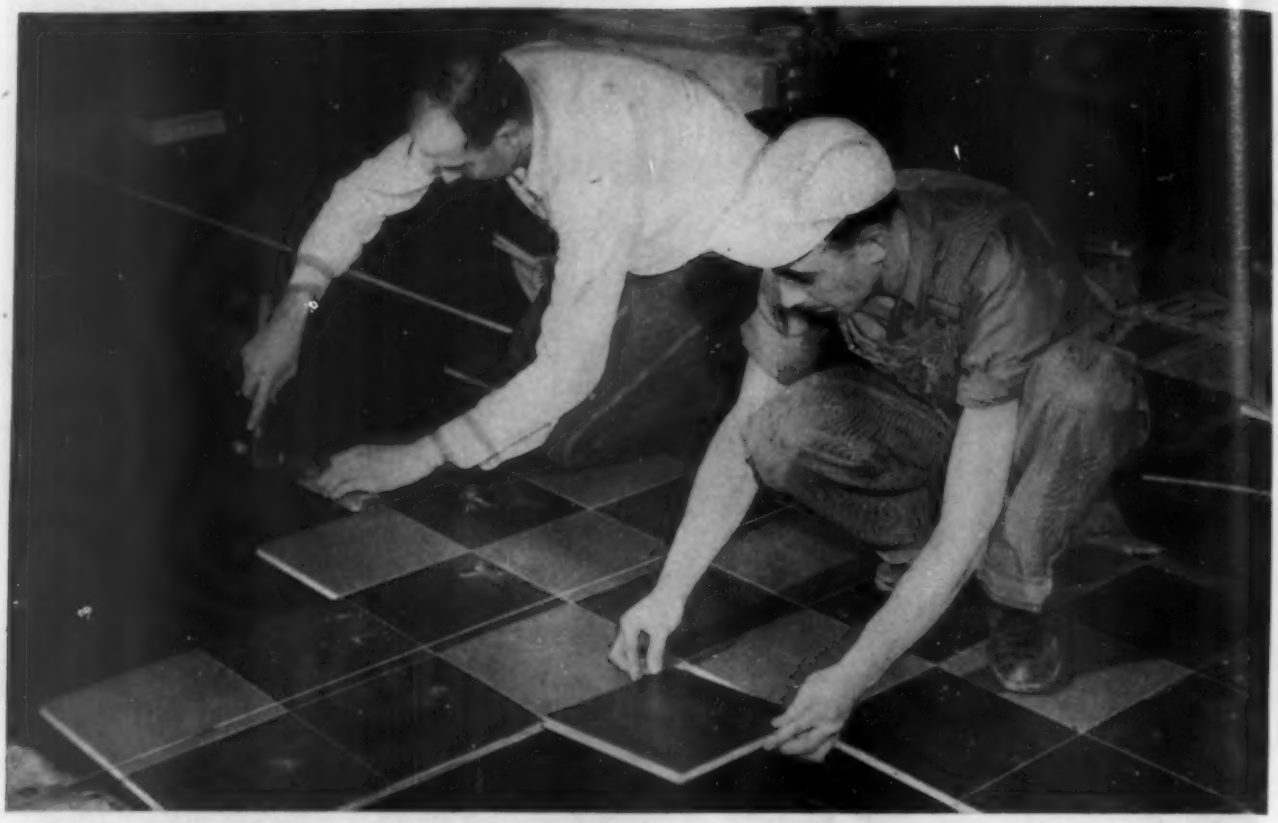
It is also necessary to know the wet and dry bulb readings within a kiln, which is a means of measuring the sensible heat of the dry bulb, and then by measuring the wet bulb to be able to calculate the relative humidity and the equilibrium moisture content.

The evaporation of water from the wick surrounding the wet bulb of a thermometer, causes a cooling effect or temperature drop of the thermometer, and this drop is in accordance with the surrounding air's ability to absorb water—hence, wet bulb depression and relative humidity. This relative humidity is not a direct proportion to the increase of the dry bulb temperature with a constant wet bulb reading, but increases tremendously. For example: If a dry bulb reads 130° and a wet bulb reads 100°, relative humidity is 35. If a dry bulb reads 150° and a wet bulb reads 100°, relative humidity is 18. When holding a constant dry bulb at 150°, and varying the wet bulb, a much greater change takes place. For example, at 110° dry bulb, relative humidity is 28, and at 130° wet bulb relative humidity is 57.

The wet bulb reading, or vapor pressure within a kiln, at any one instant will be uniform throughout the kiln; whereas the relative humidity may vary within the kiln, due to variations in the dry bulb. This variation can be caused by several factors, such as condensate on the kiln floor, plugged traps, overflowing water-boxes, or like troubles.

A brief comparison of the various qualities of steam should be made, as these give a basic concept of using relative humidity and water vapor in an effort to relieve stresses in lumber.

(*continued on page 46*)



PLYWOOD FACED FLOOR with papreg backing is one way to utilize timber better.

Five Management Problems Utilization Can Cure

Major management problems:

1. Harvesting of defective virgin or old-growth stands;

2. Removal of defective cull and old over-story of both good and poor commercial species, especially in hardwoods;

3. Utilization of hardwoods in mixed forests where over-cutting of conifers tends toward an increasing percentage of hardwood;

4. Thinning and intermediate cuttings in the management of second-growth stands;

5. Pruning by various methods and in various species where a market has created or will create values for clear wood that will return adequate profits to the operation.

by Lyle F. Watts

The principal tools of the forest manager are the ax and the saw, in the sense that selection for the harvest is the best means available to insure satisfactory subsequent harvests and realization of optimum yield of good wood. The harvest dictates all that comes after. The harvest, in turn, is controlled by a host of economic factors that reflect yarding costs, transportation costs, and so on. If those costs are too high in relation to the use of the product, it cannot be harvested. If there is a satisfactory margin the product will come out of the woods.

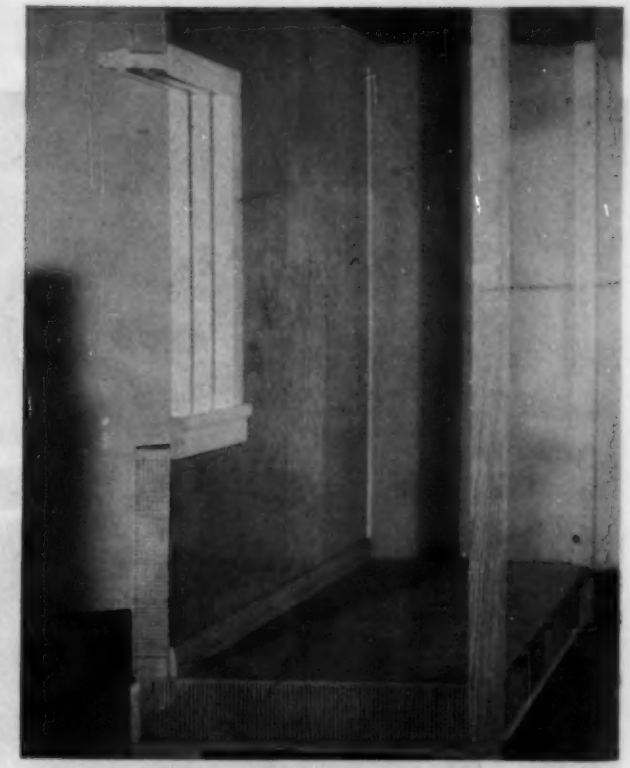
The dominant factor, however, in all matters controlling the harvest will be the market for the finished product. This is the particular aspect to explore more thoroughly, because it is in the harvesting of wood for new and better fields of usefulness that utilization research comes to bear on the total management problem.

Forest management is affected by the whole industrial development. Our whole concept of accessibility was changed by the advent of the tractor and truck in logging. Also, the development of light portable power saws has worked a veritable revolution in wood practices. Such things have made it possible to spread good management over thousands of square miles formerly thought outside the bounds of commercial forestry.

Likewise, the field of forest products utilization has felt the impact of the

From paper presented before the 1952 annual meeting of the Forest Research Society.

COMPRESSED, IMPREGNATED, LAMINATED WOOD can be used for products from antenna masts to propellers.



SANDWICH PANELS with plywood faces and resin-treated paper honeycomb cores may be used in construction.

over-all rapid development of new industries and new products in fields remote from forest products. For example, although the discovery 25 or 30 years ago of the synthetic resins at first had nothing to do with forest products, soon some of them were found to be excellent materials for bonding wood. As a result we now have the whole exterior plywood industry, the laminating industry, and a long series of products bonded into artificial boards or whatnot by use of artificial resins.

Wood Use Expanded

The history of forest products utilization research in this country can be roughly divided into three periods. In the early days, beginning about the turn of the century, the motivating influence primarily was one of encouraging efficient and wise use of wood in order to conserve our forests. In those days, research in wood utilization was being written on pages that were practically blank. We knew little or nothing of the basic properties of our native American woods as engineering materials.

This period of accumulating basic information continued up into the depression years. Then it became a major problem to promote and encourage the use of wood in order to insure better forest management. It was quite clear that only through utilization of the forest crop could we move in the direction of good forestry.

World War II gave tremendous impetus to wood use. We are no longer fearful of loss of markets for the products of the forest. Expanding technology and more and more new uses give us confidence that we shall be able to use the wood we grow, wisely and well.

The third and current phase of utilization research may be said to combine the elements of the first two phases. We study the efficient use of wood in order to conserve materials, manpower, and wealth. And we study the wise and efficient use of wood also from the point of view of promoting efficient and more intensive management of the forest.

The harvestig of the virgin forest over most of the United States was a pretty haphazard job. A host of silvicultural problems were created that do not lend themselves well to solution except through the use of the harvesting tools. Another group of problems, broadly speaking, lies in the field of intelligent harvesting of our remaining old-growth forests where we still have an opportunity to harvest intelligently and with due regard for the lessons of the past. For example, in the remaining stands of old-growth Douglas-fir we know the nature of the problem created by many billions of feet of trees infected with *Fomes pini*. We know that regeneration will be greatly forwarded by the harvesting of those trees and that a thriftier, more productive forest will follow.

We are thoroughly aware of the importance of developing utilization for decadent lodgepole and Engelmann spruce stands in untapped Rocky Mountain territories before we can look forward to having current growth and future yields from those lands.

Culled Stands Are Problem

We know the nature of the extensive culled-over hardwood lands in the central hardwood belt and we realize clearly that we shall never be able to have a satisfactory forest in that territory until we can provide satisfactory utilization of the culled stands. There will be difficulties in managing the delta hardwood and upland hardwood stands of the South and Southeast unless and until satisfactory and profitable markets can be provided for the species in those stands.

The hardwood problem extends into the Lake States, New England, the middle Atlantic states, and the Appal-

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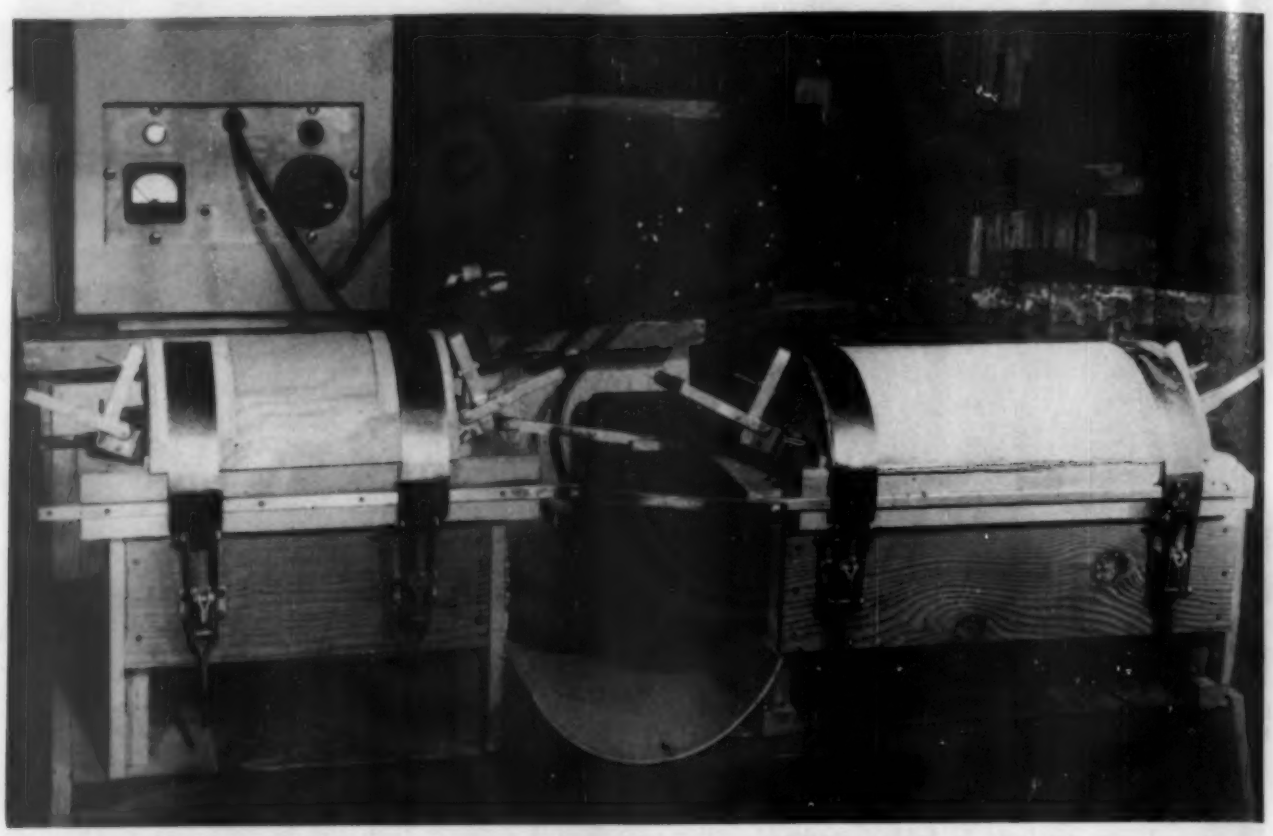


DIELECTRIC HEAT sets adhesive in this molded plywood process.

Production Setup Beats High Cost of Small Runs

New type adhesives and modern equipment are used by small California plant to produce molded wood assemblies at a profit.

by T. A. Dickinson

Although there are many west coast factories engaged in the production of plywood panels for structural use, only a few manufacturers have tried molding contoured plywood articles. Twin stumbling blocks have been relatively-low production requirements and consequent high tooling costs. Now, thanks to a new and unusual production setup, at least one western company is molding plywood economically.

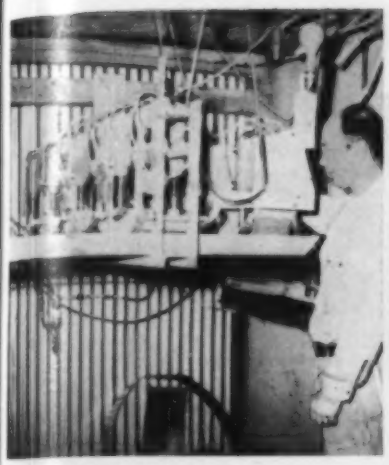
Glenwood Manufacturing Company is a seven-year-old organization with 3200 square feet of plant space. It is owned and operated by Paul R. Williams and Walter C. Roberts at Burbank, Calif. Roberts is a veteran production executive and Williams is a design engineer who developed many of the tools and techniques that were used in constructing Howard Hughes' gaint plywood seaplane.

Most of the company's success can be traced to the efficient use of new-type molding equipment, which occupies about a third of the floor space. Nucleus of this equipment is a battery of eighteen hydraulic presses, all of which were made to order with aircraft-type hydraulic units. They are powered by means of a single centrallized 1000-lb. pump with a 7½-hp. motor, utilizing about 100 feet of hydraulic feed lines.

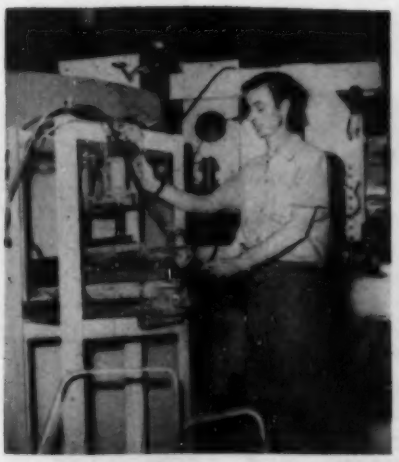
Molds or dies for the presses are built up from prefabricated wood contour blocks. They are shielded with stainless steel sheets so that moldings can be electronically heat-cured without danger of adhesion to wood tooling surfaces. These molds can be assembled and put into production faster than the cheapest types of plaster tooling, yet are as durable as most metal dies for plywood-molding purposes. They are said to maintain consistent dimensional tolerances of 1/64"—regardless of how extensive production requirements may be.

Wood dies can readily withstand plywood molding pressures of 125 to 150 p.s.i., and are not susceptible to heat damage—even though curing temperatures of 175 to 210° F. are required—since the metal shields on the dies are used as electrodes for specialized types of dielectric or resistance heating equipment.

Birch, oak, maple, and many other varieties of hardwood veneers are used as laminae for molding operations. They are coated or impregnated with a thermosetting phenolic adhesive and stacked one over the other as necessary to produce moldings of



SUSPENSION PRESS USES four pairs of hydraulic cylinders and rams to mold parts with complex contours.



DUAL-RAM PRESS and metal-shielded wood molds make it possible to produce these laminates economically.

INFRA-RED HEAT and plastic adhesive are used in this assembly. Wood clamps and nails maintain pressure.

ASSEMBLY OF PLYWOOD MOLDINGS is trimmed prior to finishing operations.

SMALL DRUM SANDER does excellent job finishing small plywood parts.

specified thicknesses (normally ranging from 1/64″ to 1/4″).

As a rule, the hardwood materials are resin-impregnated prior to molding if no assembly or finish-processing of molded articles will be required. If the moldings must be machined or assembled, the standard procedure is to brush-coat veneers with the phenolic resin only on the surfaces which must be mated since a finish coating will have to be applied after fabrication operations are complete.

The Glenwood organization is unique in that it can produce virtually all two-dimensional shapes in a single-stage curing process without the most expensive types of press tooling. Three-dimensional moldings are made with two or more press operations and by assembling two-dimensional moldings.

Stacked laminae for moldings are sandwiched between metal die shields so that curing heat and pressure can be applied with the hydraulic presses, and all press operations are independently controlled—regardless of the fact that hydraulic power is provided by only one pump.

Plywood moldings that have thus far been produced range from furniture parts, tableware, and novelties to take-your-own-photo booths and experimental airfoils for the western aircraft industry.

Because phenolic adhesives can unite wood layers with more bond strength than natural tree resins, the moldings can be sanded, saw-trimmed, or otherwise machined as if they were carved from individual wood blocks.

Where it is necessary to assemble moldings to produce finished articles, the usual practice is to coat mating surfaces with phenolic adhesives so that curing pressure can be applied with wood clamps and nails. Infra-red lights are then used to heat-cure the joints on assembled parts, after which nails may or may not be removed—depending on their respective locations and the required appearance for finished products.

If moldings are not resin-impregnated, as previously suggested, molded articles or assemblies can be finished with any of the coatings normally applied to wood products. However, since it is generally desirable to retain the hardwood-grain appearance of outer-laminae layers on the moldings, finishing is usually done by spray-coating the surfaces with

(Continued on page 76)

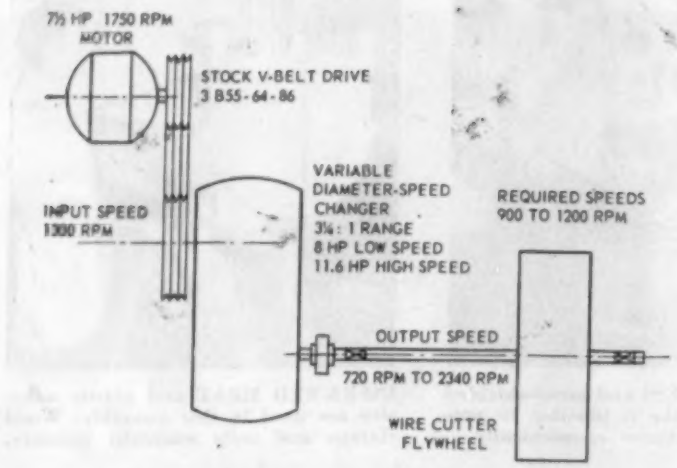


FIG. 1: Variable diameter-speed changer.

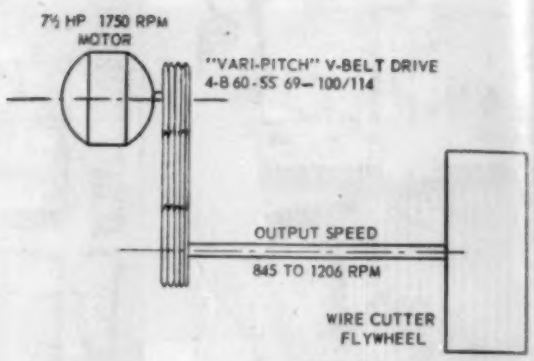


FIG. 2: "Vari-pitch" V-belt drive.

How Speed Control Helps Boost Production

Right drive mechanism gives better control. Range of speed requirements and necessity for "change while moving" features should be considered.

by E. A. Gahl

In these days of highly competitive operations, use of variable speed drives may often mean the difference between doing business at a profit or a loss. Variable speed drives can help boost production, ease the manufacturing process, and provide correct speeds for the operator and the product.

There has been great increase in the use of mechanical variable speed devices throughout industry in recent years. This trend is certain to continue as the advantages inherent in the ability to change speeds at will are more widely promulgated.

With this trend, however, have been developed drives not designed for the specific operations they were intended to perform. In most of these instances, a lack of analysis by the purchaser or field engineer unfamiliar with drive types available has proven costly.

Careful Analysis Pays

By analyzing adjustable speed problems in advance, it is often possible to select a reasonably priced drive which will effectively do the job. As an example, consider a wire cutting machine powered by a 7 1/2-hp, 1750-rpm motor which required a speed range of 33 1/3 percent. Variation in wire sizes and the need for steady production required speed changes in a 900 to 1200 rpm range.

To satisfy these requirements, the plant engineer's first choice was a speed changing unit which would drive directly through a coupling to the machine. A cursory glance would indicate this to be a wise selection since a speed changing unit will give a 3 to 1 speed range, it can be adjusted while in motion, and it will easily give the desired speeds. However, further study prompted the following questions:

Does it have variable speed? Does it have sufficient speed range? Can it be adjusted while in motion? Is it available in the rating required? Can it be used with a standard stock motor? Would it fit into the space available? How about repairs and maintenance costs? Is the price acceptable?

From the accompanying layout (Sketch I) it can be seen that the speed changing unit will deliver more speed range than is necessary; that it is sufficiently large to handle the required horsepower, and that repair and maintenance factors will be low. Also, adjustment is easily made and any speed setting is maintained until the operator changes the setting on the unit. Total price for the motor, v-belt drive and speed changing unit would be $1138.33. For what the drive can accomplish, the price is not exorbitant. But is all this necessary?

However, before deciding definitely on the speed changing unit, the plant engineer elected to compare other types of available variable speed drives. The standard variable speed sheave has a speed range up to 46 percent in very small pitch diameters and about 18 percent in the larger sizes. The small sizes are not practical because the drive would need a greater number of grooves and belts; the larger sizes do not offer the full 33 1/3 percent speed range required.

Select Sheaves Carefully

He determined that it is possible to use two variable speed sheaves in combination and thereby double the speed variation, or increase the speed change from 18 percent to 36 percent in the larger sizes. These sheaves are connected by a control mechanism and crank for changing speeds while the drive is in motion. As the motor sheave adjusts to a larger diameter, the driven sheave conforms to a smaller ptich diameter. A speed range of from 900 to 1200-rpm is possible through careful selection of the sheaves to be used.

By referring to tables in variable

(*Continued on page 78*)

OUT-SIZED BUNKS are used to hold "packages" of logs before they are transferred to normal size trucks.

Giant Truck Takes Three Loads to Highway

Here's a case where two sizes of trucks and a transfer of loads enroute saves money.

by Bob Forbes

It took a series of conferences between the woods operations and mechanical departments of Potlach Forests, Inc.—held during the winter of 1950-51—to lick the tough problems of getting logs out of the area around the company's Camp 58 to a railhead at Stites, Idaho.

The problems: Trucks would have to start with their loads of logs at an elevation of about 4,300 feet, climb a 4,650-foot saddle and then drop down to state highway 13 at Greencreek landing on the South Fork of the Clearwater River at 1,700 feet—all in 23 miles of private road.

Ample power and good brakes would be required of trucks, even though corkscrew curves limited speed to 10 or 12 m.p.h.

Five giant trucks, equipped with hydrotarder and 16-foot log bunks, were selected after a thorough study. The 100-ton giants, each with a 300 h.p. Diesel supercharged motor, have been hauling loads of 15,000 bd. ft. of logs at a time from Camp "58" to Greencreek landing for six months.

At Greencreek landing, each big 15,000 bd. ft. load is transferred, in three previously prepared bundles containing 5,000 bd. ft. apiece, to smaller trucks for the 10-mile highway haul to Stites. Five-thousand-foot log bundles comply with the state highway limitation of 68,000 pounds gross.

Transfer Made by Derrick

Transfer of loads necessitates a derrick at Greencreek having a diesel power unit, 105-foot mast and 90-foot boom, the whole being guyed by eight 1⅛-inch cables 250 to 350 feet long. The cables, spreading out from the top of the mast, required special anchoring into rocks of the South Fork canyon. Hairpin-like rods 10-feet long were attached to each cable and then sunk into 2-inch by 10-foot holes drilled in the rock.

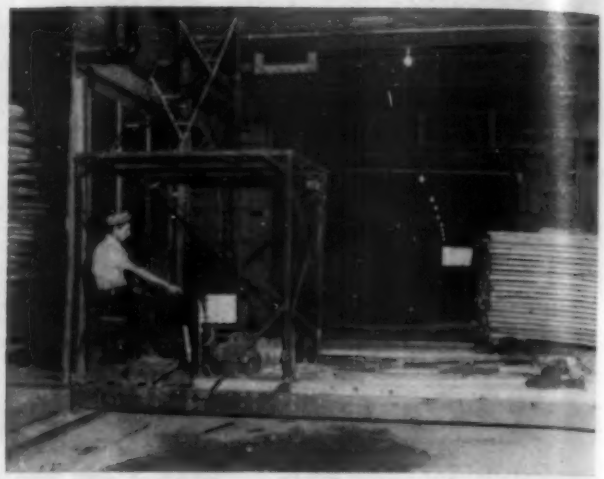
Special Anchors Required

An ordinary cement could not be found that would positively hold up under the 26,000-pound tension imposed on the anchors. Therefore, molten sulfur was poured into the holes to fuse hairpins to the surrounding rock. This anchoring method has proved a success.

The entire transfer and reloading procedure has worked out well with minor changes as the operation progresses. One big truck can be unloaded and three smaller, highway trucks can be loaded in about thirty minutes, according to Connie Packer derrick operator.

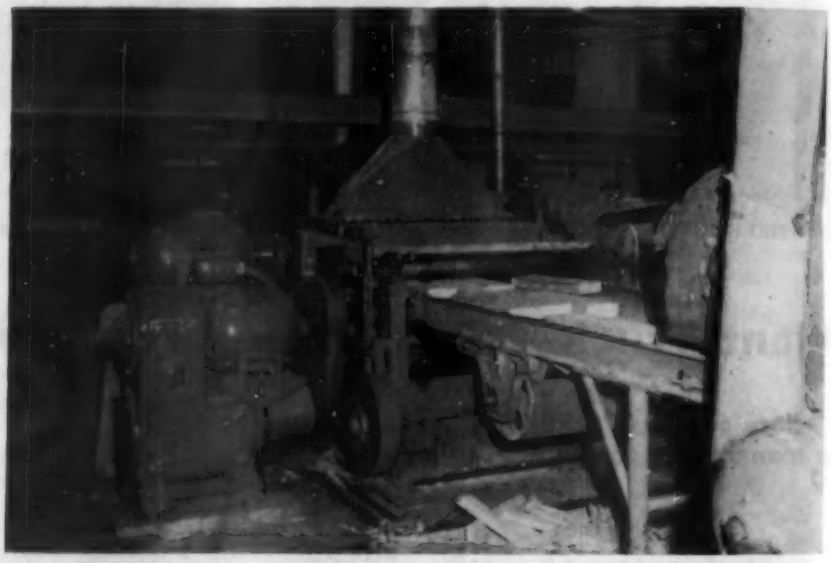
UNIVERSITY OF MICHIGAN LIBRARIES

1. TILTING UNLOADER and elevator to keep load at convenient height (foreground) help men speed work of sticking lumber for drying.



2. KILN DRIED LUMBER is here being moved from the tempering shed into the plant, where cost cutting handling devices are used.

3. ENDLESS BELT beside operator is first step in painless lumber handling.



4. AFTER FACING, blocks move through surfacer (center) and then to sorter (background).

This Rough Mill Layout Cuts Handling Cost

Modern belt conveyors and plant designed sorting device cuts handling costs at Morgan Manufacturing Company.

In Black Mountain, N. C., Morgan Manufacturing Company, producer of top quality furniture dimension, uses many modern material handling devices to speed production and cut costs.

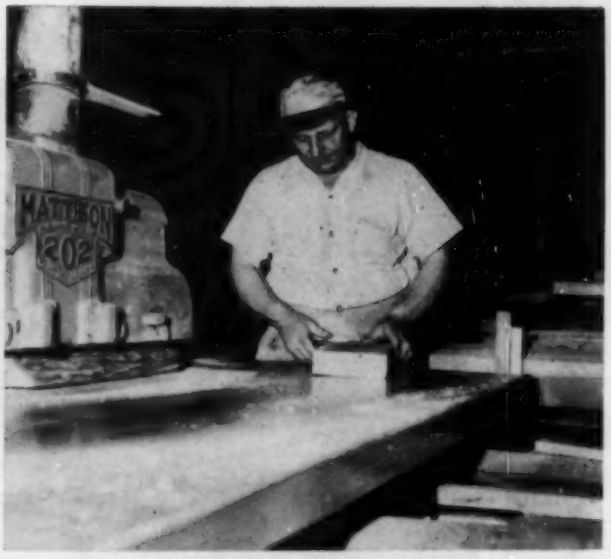
Although the most interesting feature of the material handling procedure is inside the plant, the operation actually starts in the yard.

From the time the rough lumber is stickered for kiln loads (Photo No. 1) until it is ripped on order for a particular job, practically no lifting is required. Lumber is moved in lifttruck loads from the grading area to the tilting unstacker for sticking. As a load is built up, the table lowers so the men making up a load work at a convenient level.

Loads of stickered lumber are then stacked by lift truck for air drying.

As orders demand, loads are taken from storage by lift truck and placed on kiln trucks for controlled drying in one of the long battery of modern

5. WORKMEN DROP BLOCKS on belt which leads to next to last rip saw on the line. Sorters can send blocks to whichever saw operators need materials.



6. END OF HANDLING SYSTEM is the rip saw operator. Supply table at his side is kept supplied from sorting device (Photo No. 5).

kilns. From the kiln, the lumber moves to controlled tempering sheds (Photo No. 2) to assure proper cooling.

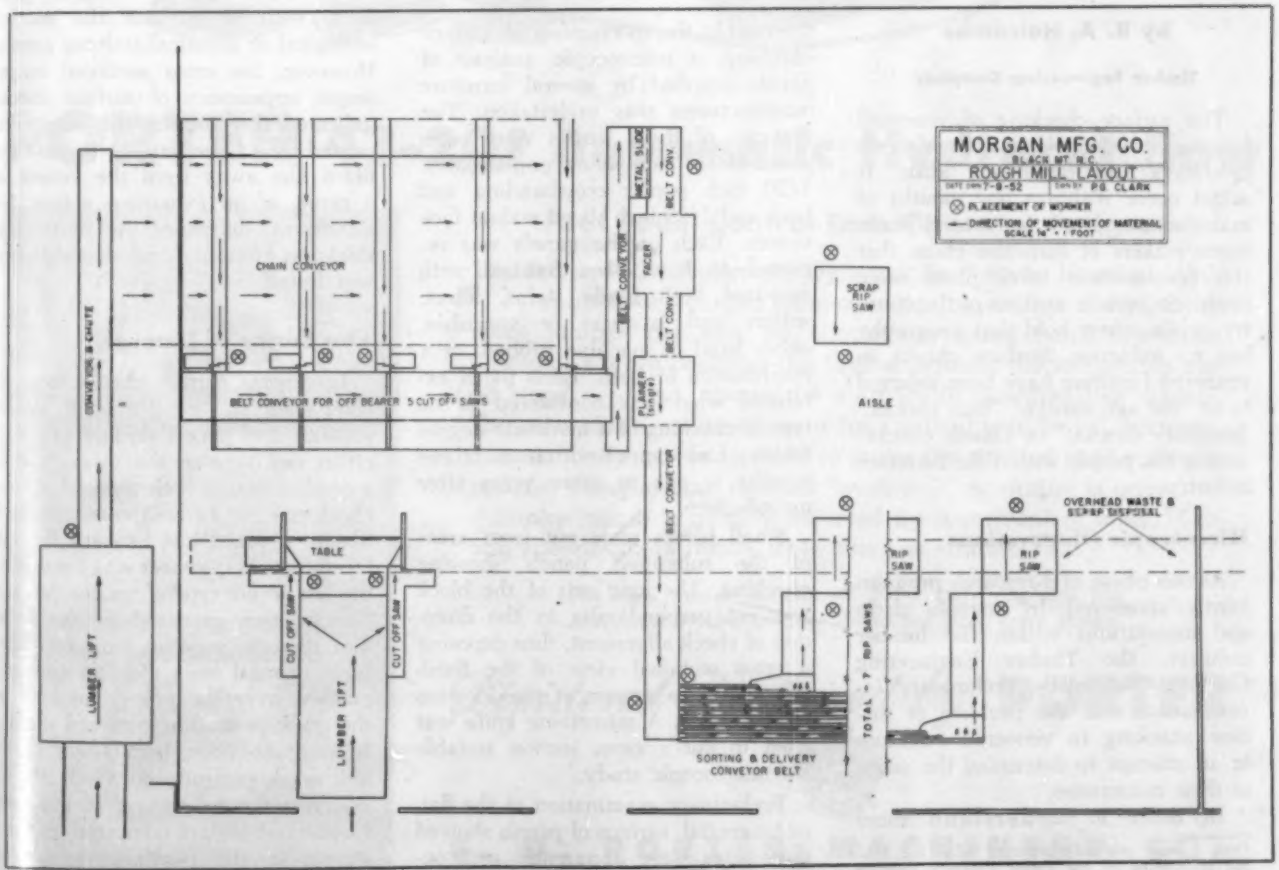
From this point on Morgan Manufacturing Company has an unique arrangement of machines, chains and belts to handle lumber at top efficiency.

Kiln truck loads of lumber are moved to an unloading elevator that keeps the load top at the right handling height.

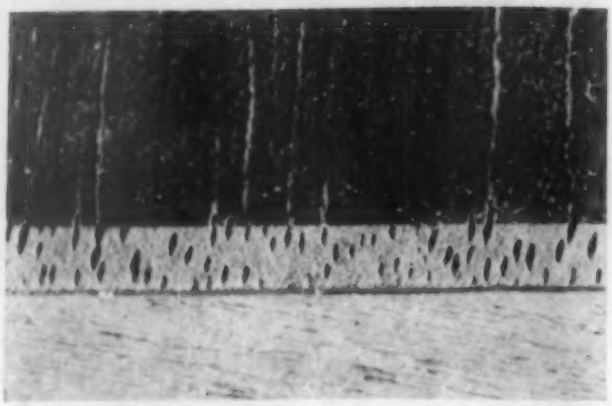
The operator pulls the lumber off onto a belt. The lumber moves lengthwise through a company devised machine for measuring board footage. It then transfers to chains and is carried to a battery of cut-off saw operators. (See the diagram.)

Next the short pieces are carried by endless belt to an operator who feeds the pieces into a facer. They are automatically fed next into a sur-

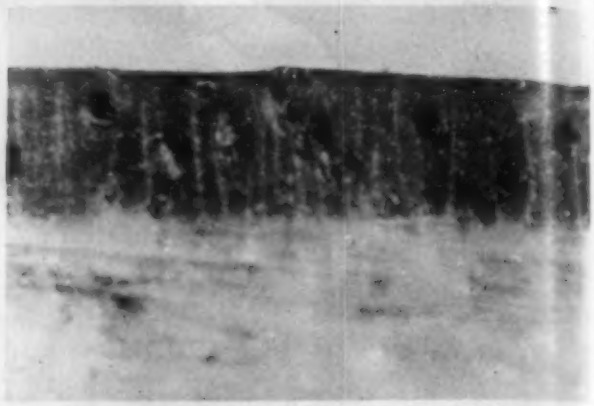
(Continued on page 79)



MODERN ROUGH MILL LAYOUT uses belts in place of manpower to cut costs.



OBLIQUE CROSS SECTION of a severely checked walnut veneered furniture panel is shown here.



SURFACE CHECK extends diagonally through the face veneer of a walnut veneered furniture panel.

Methods That Control Furniture Panel Checks

Alternate high and low humidity appear to be responsible for surface fatigue in specific areas of oak and walnut panels. Exposed tight faces are less affected than exposed loose faces.

High grade synthetic varnish finish shows significant to control panel checking. Part I

by R. A. Holcombe

Timber Engineering Company

The surface checking of veneered furniture has long been a problem to producers and purchasers alike. It might occur within a few months of manufacture, or not for several years. Some makers of furniture claim that this phenomenon takes place more readily in certain sections of the country, while others hold that geography has no influence. Surface checks in veneered furniture have been referred to as "old age checks," "hair checks," "humidity checks," or "finish checks" among the people within the furniture industry.

Microscopic Observations

As one phase of a research program jointly sponsored by manufacturers and associations within the lumber industry, the Timber Engineering Company has made preliminary investigations into the problem of surface checking in veneered furniture in an attempt to determine the cause of their occurrence.

In order to understand more thoroughly the mechanism of surface checking, a microscopic analysis of panels supplied by several furniture manufacturers was undertaken. The majority of these panels were composed of 3/4 inch yellow poplar cores, 1/20 inch poplar crossbanding and back and 1/28 inch sliced walnut face veneer. Each of the panels was reported to have been finished with standard high grade stains, fillers, sealers and lacquers or varnishes, either hand or machine rubbed, or a combination of both. Each panel exhibited what was considered to be typical checking of a moderate degree which had appeared from three months to one or more years after manufacture.

Small blocks were cut from areas of the submitted panels showing checking. The long axis of the block was cut perpendicular to the direction of check alignment, thus exposing a cross sectional view of the finish film and face veneer at the location of the check. A microtome knife was used to cut a cross section suitable for microscopic study.

Preliminary examination of the flat, or tangential, surface of panels showed that pores were apparently well occupied by filler and no evidence was found which would indicate that a lack of filler might be responsible for finish checks. From the microscopic analysis of panel cross sections, it was difficult to ascertain the filler content of each pore over which a severance of finish film occurred. Pores in walnut generally contain silicate material which is difficult to distinguish from filler, with or without the use of biological or chemical staining agents. However, the cross sectional microscopic appearance of surface checks indicated that they might have been caused by a force tending to push the finish film away from the veneer as a result of an expansive action. No significant difference in finish film thickness in normal and checked areas was found.

Two Forms of Damage

In general, surface checks were accompanied by two forms of veneer damage, and panels studied exhibited either one type or the other; seldom a combination of both types. A minute check extending from the broken finish film to a vessel just beneath the surface of the face veneer was considered the less severe type of veneer damage. Checks also appeared in the finish film directly over an exposed, filled pore. In most cases the film appeared cracked over the pore; one edge of the crack protruding outward slightly. In rare instances, both edges of the film crack protrude outward. An obliquely-cut cross section of a severely checked walnut veneered panel is shown in the photomicrograph represented by figure 1. Note the

From a paper originally presented before the 1952 annual meeting of the Forest Products Research Society.

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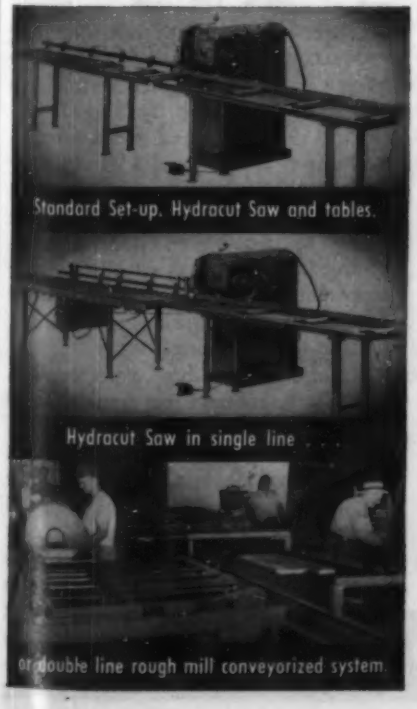
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TYPICAL SURFACE CHECKING of an oak veneered furniture panel subjected to alternating conditions of high and low humidity.

EARLY STAGE of check development in a walnut veneered panel exposed to alternating conditions of high and low humidity.

relative size of the checks as they appear over vessel areas.

In the more severe form of veneer failure, checks run vertically or diagonally through the face veneer, originating at the film crack, extending through an adjacent large pore and continuing through the thickness of the veneer to the point of its lamination to the cross-banding or just above this point. This type of check in the surface veneer appeared similar to what is commonly called a lathe check. However, only a very few of the panels examined contained this type of checking. The checks do not necessarily run parallel to the wood rays, and in many instances the checks exhibited a wavy, inconsistent pattern through the veneer toward the cross-banding. Figure 2 is a photomicrograph of a walnut panel showing this type of veneer check.

Selection of Test Variables

In ascertaining the factors which might influence the checking of veneered furniture, little relevant information was found in the literature. Only one reference was discovered which warned against the manufacture of furniture panels with the loose (knife) side of the face veneer exposed. This fact has long been known, for among furniture manufacturers the practice of exposing the tight side of face veneer in preparing furniture panels is reported to be widespread. The possible influence of veneer tightness was, therefore, considered to be an important factor in panel behavior.

At the start of this investigation, it was suggested that the condition of veneer knives in cutting face veneer stock could have an effect upon the properties and, in turn, the stability of face veneers in completed furniture panels. In order to carefully control a variable of this nature, a representative of the Timber Engineering Company witnessed the slicing of three flitches of face veneer at a veneer plant cooperating in this study. One flitch each of walnut, oak and cherry was sliced into 1/28 inch face veneer. As each flitch was sliced, the individual veneers were designated according to their loose and tight side by marking with crayon. Each of the flitches were cut in three stages throughout the normal period of use of a veneer knife. This resulted in approximately one-third of each flitch being cut immediately after the installation of a fresh knife; one-third midway in the use of the knife, and one-third cut just before the knife was removed for sharpening. The condition of the knife was also marked on each veneer as it was sliced, so that each flitch resulted in veneers representing six variables of maufacture. Pressure bar setting remained unchanged through the slicing operations.

In order to simulate as nearly as possible the materials used in commercial furniture production, a urea glue commonly used in the industry was employed in laminating cores, crossbanding, face and back veneers, To determine the possible effects of room temperature setting and hot press techniques upon panel behavior, these two methods of gluing were used, thus introducing two additional variables for study.

In addition to the variables involved in face veneer manufacture and gluing, the type and quality of finish to be applied to test panels was also considered. A large producer of finishing materials for the furniture industry cooperated in supplying information as well as finishes for this investigation. Four finishing systems were selected: a high grade lacquer topcoat of 25 percent solids content, a less expensive, or low grade lacquer system of 21 percent solids, a low grade varnish finish of 45 percent solids, and a high grade synthetic alkyd-urea varnish of approximately 40 percent solids content. The latter material required the addition of an activator prior to spraying and a baking of the applied film at oven temperatures of 130° to 140° F for two full hours.

Preparation of Test Panels

A total of eleven variables were therefore involved in the preparation of test panels for the investigation of surface checking in furniture panels. At the conclusion of preliminary tests, additional variables in panel manufacture were investigated. These will be discussed later in this paper.

Core stock for experimental panels was prepared from 4/4, No. 1 Common kiln dried yellow poplar cut to two inch widths. Sound tight knots not exceeding 1/2 inch in average diameter were permitted. Edge gluing was accomplished on a clamp carrier using Colpres-10, a quick setting urea adhesive developed by the Timber Engineering Company. Following removal from clamps and a conditioning period, the cores were planed and thence veneered according to a specific outline of preparation. Each panel thus produced was stanmped with a code representing the past history of the panel as well as information regarding finishes to be applied.

Preliminary studies were confined to walnut veneered test panels. These panels were stained with two spray coats of a non-grain-raising stain and filled with a walnut colored filler of an approximate consistency of 14 pounds per gallon of solvent. Lacquer or varnish sealer coats and finish coats were applied with a spray gun. To assure uniformly controlled testing conditions, all prepared panels were preconditioned in a constant-temperature, constant humidity conditioning

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room for one week. At the end of this period, the test panels had reached equilibrium at approximately 8.8 percent moisture content.

Testing Procedure

In Report No. 1655, June 1950, published by the United States Forest Products Laboratory, it was estimated that the average moisture content of interior woodwork in Washington, D. C. ranged between 8 percent in January to 11 percent in July, during the course of a normal weather year.

It was therefore decided to test the prepared panels in two groups; one of which would be exposed to normal room temperature conditions over a period of several months, and the other group to be subjected to accelerated conditions of high and low humidity, each extreme in humidity to exceed the average values published in the above report. In order to subject the second group of panels to conditions favoring the development of stresses within the panel components, accelerated "weathering" was initiated by subjecting the panels to alternating conditions of high and low humidity every 24 hours for a period of two weeks. The cabinet employed in producing these conditions contained automatic controls for maintaining dry bulb and wet bulb temperatures, together with a heating element, a source of water vapor, and two circulating fans. In this chamber, it was possible to develop relative humidities up to 90 percent resulting in an equilibrium moisture content within the panel of approximately 19 percent at 90° F. Low humidity was attained through the use of cooling coils supplemented by a calcium chloride dehumidifier within the cabinet. A relative humidity of 36 percent at 90° F. produced an equilbrium moisture content within the wood of approximately 6.8 percent.

Inspected for Checks

Daily inspection of conditioned panels over the preliminary two week period of 24 hour alternating humidity cycles showed that no finish cracks or checks had developed. Both visual observation and microscopic observation of panel surfaces were employed. The length of cycle alternation was then increased to 48 hours. At the conclusion of the first cycle of high humidity, a number of panels appeared to have developed a condition which, when examined microscopically, appeared to be minute ridges running directly over and parallel to filled pores. No cracks or checks in the finish film were discovered. This evidence indicated that the filler had apparently expanded, or had been forced out of the pores, and in doing so, caused the finish film, which was still sufficiently elastic, to bulge outward over the filler. In continuing the alternate cycling of high and low humidities, it was noted that the protruded filler showed a tendency to contract during periods of low humidity. The contraction in some cases appeared to somewhat offset the original protrusion of the filler, and in a few instances even to result in a sunken appearance of a filled vessel.

After the completion of four additional 48 hour humidity cycles, it was observed that the manufacturing variable which occurred most often in those panels exhibiting filler raising was that of the exposure of the loose side of the face veneer. Panels prepared with face veneer cut at the end of the veneer knifes' normal use period also showed a greater tendency to develop filler raising than those panels which utilized veneer cut at either of the other two periods. Approximately 80 percent of the affected panels had been constructed in this manner. Other groups of opposing

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variables were represented in approximately equal numbers and could not be considered as indicative of any trend. It was noted, however, that those test panels finished with a synthetic varnish showed no evidence of filler expansion. Apparently, finishing materials of this type provide an effective barrier against moisture vapor transmission, and sufficiently reduce movement of the filler or face veneer with changing atmospheric conditions.

Results of Conditioning

When, upon continuation of 48 hour alternate cycling, no additional effects were noted, the entire group of test panels was removed from the conditioning chamber and divided into four groups. The method and results of the conditioning of these units were as follows:

Unit 1. Exposure to constant conditions of low humidity (36 percent) until weight equilibrium was reached. Panels subjected to this condition appeared unaffected.

Unit 2. Exposure to constant conditions of high humidity (90 percent) until weight equilibrium was reached. Approximately 70 percent of the test panels showed evidences of filler protrusion under conditions of prolonged high humidity. Of these panels, 60 percent contained the loose face of the veneer exposed, while 90 percent of the affected panels contained either lacquer or low grade varnish finishes. No checks developed as a result of high humidity alone.

Unit 3. Exposure to 24 hour cycles of alternating heat (120°F) and freezing conditions (10°F) for a period of one week. All panels except those containing a synthetic varnish finish exhibited checking directly over filled vessels of varying degrees of severity. Checks appeared after four days or two complete cycles, starting with low temperature. The developed checks gave the appearance of having been caused by a pulling in or sinking action rather than an eruptive action.

Unit 4. Exposure to constant conditions of high heat (140°F) for a period of one week. Upon exposure to the drastic conditions of this test, all panels were affected in the same manner. Lacquered and low grade varnished panels exhibited rather severe checks of the sunken type of approximately equal severity. High grade varnished panels, in general, developed only a sunken appearance of the finish film over filled vessels.

From the results of the preliminary set of experiments with walnut panels, it appeared that only two variables of panel manufacture had a definite effect upon the reaction of finished panels to conditions under which they were subjected. While there appeared an indication that tightness or looseness of exposed face veneer might influence panel behavior to conditioning, there appeared definite evidence that the quality of finish was of major importance. Results also indicated that the cause of ridge-like protuberances directly over exposed vessels could be attributed to conditions of high humidity.

An additional quantity of test panels involving face veneers of walnut, oak, cherry and maple were investigated. The latter two species remained unfilled, according to common finishing practice. Walnut and oak panels, however, were prepared in a manner involving variables with respect to filling operations. The presence or absence of sander dust in filled vessels and the effect of a possible filler stabilizing, presealer heat treatment were thought to be factors which might influence filler activity during conditioning periods. The total absence of filler in the open grain woods

(*Continued on page* 79)

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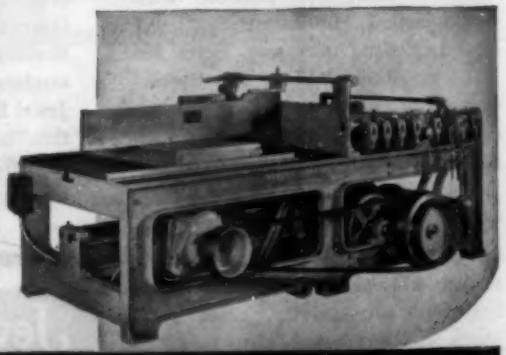

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Management Problems

(continued from page 25)

achians. Under-utilization characterizes most of our hardwood-producing territory, and until a proper balance can be struck we shall continue, I suppose, to over-cut conifers and under-cut hardwood.

The problems posed by residual stands of low-grade cull hardwoods will be with us quite a while. There is no question but that these stands could be restored to productivity if we had unlimited money and manpower to do the indicated silvicultural jobs of conversion and reclamation. But I do not forsee that they will be treated that way. I think rather they will gradually be converted to productivity through utilization of the old overstory.

Good management of second growth stands in many cases requires progressive thinnings and selection cuttings. In some cases, especially in southern pine, very good progress has been made in utilizing intermediate cuttings for pulp, using this technique to promote efficient and rapid growth of saw timber of reasonably good quality.

We have not yet reached the stage, however, where the most efficient thinning practices can be employed, simply because we have not yet reached the stage where the material removed in early thinnings has market value. There may come a time when management will be so advanced that men will invest in early thinnings with a certainty of satisfactory recovery due to increased growth rates, but commercial practice has not yet gone that far in very many instances. We need for almost all timber types more broad and adaptable utilization processes that can take wood well below pole size and utilize it at a profit.

I want to refer briefly also to the growing importance of pruning. Pruning has been demonstrated to be profitable in many types where the objective is production of clear wood. It is not likely that it will ever be applicable to all species. For a long time it may be limited to a few species that are well adapted to production of good quality veneer and lumber; but in some of those cases research has already proved that the process can be made to pay large returns.

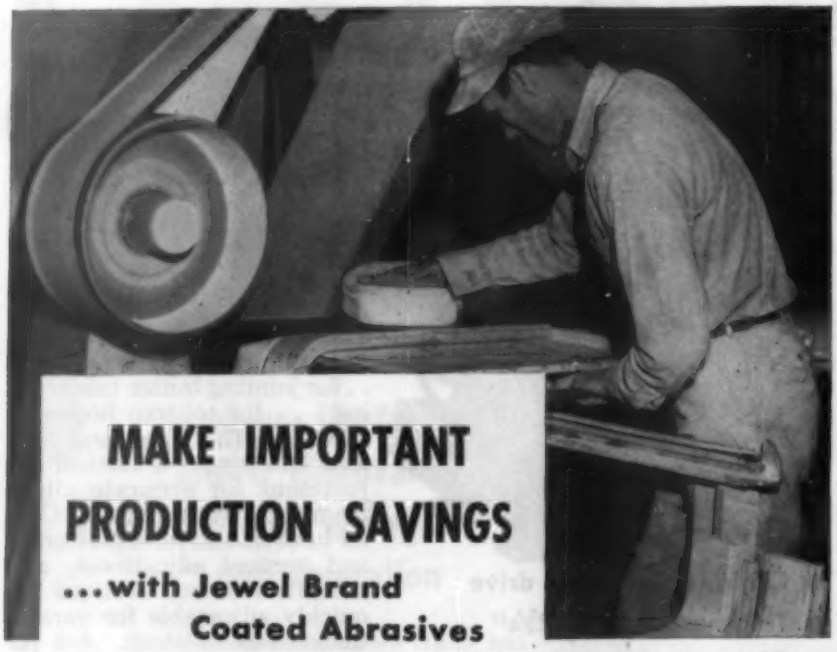
Now let us look briefly at some of the trends and developments in utilization research that have already contributed toward the solution of management problems, and then analyze, if we can, how they may be expected to contribute further in the future.

Utilization research, generally, can be divided into three major parts:

1. Work on wood that will be used in its natural form
2. Modified wood, that is wood to which something has been added in order to enhance its usefulness
3. Chemical and fiber products in which wood has lost its original form.

Consider the first division—wood as wood—and the things that have taken place that have a direct bearing on management policies. In 40 years we have built up a vast amount of knowledge of the fundamental strength properties of our species, and we have thus made possible the use of our woods as engineering materials.

We have seen the influence of the development of synthetic resins on the laminating and plywood industries. There have been some rather dramatic developments in the last two decades. It has been only about 20 years since the first laminated-arch building, but



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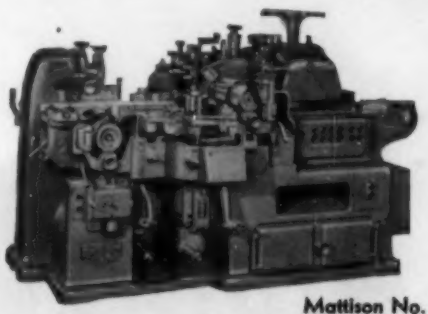

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Roddiscraft containers include the two components of the adhesive as a unit. The top section contains the correct amount of powdered hardener to combine with the liquid resin in the lower section, and the user may mix the adhesive all at once, or in any similarly proportionate quantity. Detailed instructions for the many uses of URAC 185 in the woodworking industry are included with each container.

Decorative laminate users, furniture repairers and manufacturers, carpenters, contractors and other specialists in woodworking agree that URAC 185 means really strong bonds which set quickly at room temperature and are completely dependable. A craze-resistant, gap-filling bonding agent, it provides excellent bonds in thickness up to 0.020 inches for plastics, hardboards, plywood and wood structures. A URAC 185 bond is actually stronger than the wood fibers and resists deterioration from moisture.

A fine product which benefits from this fine adhesive is the famous Seth Thomas clock. Before using URAC 185, thirty bending forms were required to make wood clock cases. The adhesive then used required four hours for curing and the thirty bending forms were necessary to maintain a continuous cycle operation.

With URAC 185, cured with high frequency heat, the time cycle is approximately 20 seconds and only *one* bending form is necessary. In addition, because of the simplicity of URAC's application, valuable plant space is saved and labor costs are reduced.

While accuracy of time is the important factor in a timepiece, beauty and fine workmanship are equally important to the General Time Corporation, makers of Seth Thomas clocks. URAC 185 makes a definite contribution to their fine craftsmanship.

The Eero Saarinen-designed chair, produced by Knoll Associates Inc., is another example of the excellent bonding jobs made possible by URAC 185. The one-piece leg-arm is comprised of thirteen thin layers of birch glued together with URAC 185. The unit is then molded into its final shape.

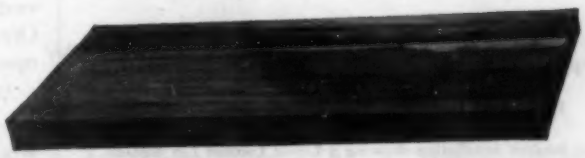
The Quality Maple Block Company, Kingston, New York, makes fine chopping blocks glued with URAC 185. These blocks must withstand the shocks of frequent chopping and pounding without loosening of the individual layers of wood. URAC 185 makes this possible.

URAC 185 may be spread with a knife, spatula or brush, and the craze-resistance of this product permits the use of ordinary hand-operated C-clamps.

The advantages of URAC 185, utilized so effectively by the above manufacturers, can now be employed to equal advantage in lesser quantities by other manufacturers. From its headquarters in Marshfield, Wisconsin, and its conveniently located warehouses, Roddiscraft assures quick delivery of URAC 185 Resin Adhesive to meet individual requirements:

URAC 185 combines with rare woods to produce the cases for the famous Seth Thomas clocks.

Knoll Associates employ URAC 185 because it provides durable, craze-resistant bonds.



Built up with URAC 185, this chopping block will withstand tough treatment.

URAC 185 is available from any of these Roddiscraft warehouses:

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Los Angeles 58, Calif.
2620 East Vernon Ave.

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Miami 38, Florida
315 Northeast 73rd St.

Milwaukee 8, Wis.
4601 W. State St.

New York 55, N.Y.
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Port Newark 5, N.J.
103 Marsh Street

St. Louis 16, Mo.
3344 Morganford Road

San Francisco 24, Calif.
345 Williams Ave.

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38A Rockefeller Plaza, New York 20, N. Y.

In Canada: North American Cyanamid Limited, Royal Bank Building, Toronto, Ontario, Canada

the technique has developed with giant strides. There seems to be no limit now to our ability with edge gluing, scarf jointing and lamination to build members of almost any size and tailored to almost any shape.

This opens the way to wide employment of wood from trees much smaller than what we were accustomed to deal with in the virgin timber. We no longer need to aim at the growth of huge old trees for a lot of uses that once required them. We have much more flexibility with the laminating technique than we ever had when we had to saw straight timbers from very large trees.

It should not be thought that the technique of lamination throws open the field of utilization to indiscriminate use of common grades and cull lumber—that is not the case. For a lot of purposes lamination requires a pretty high grade of wood. Yet there is a place in some heavy lamination for the inclusion of knotty material in the inner parts of the members.

The most dramatic recent development of the exterior plywood industry is the return of wood to the box-car field. The so-called Unicel box-car is an all-wood car, with the exception of the chassis. The same principles of stressed covered panel construction and lamination are also being applied to highway trailers.

There also seems to be a continually increasing field of usefulness for plywood in general, because it is a thoroughly satisfactory material. This points up the necessity for forest management to look toward the production of veneer logs. As a matter of fact, techniques for the cutting of veneers from second-growth Douglas-fir are already in use. None of it is coming from pruned Douglas-fir, but it can and probably will in the future. These developments point to a need to plan for the production of a certain proportion of clear wood. Management policies can ever lose sight of that fact.

In the harvesting of defective old-growth, research has come up with some interesting developments in utilizing so-called "white-pocket Douglas-fir. White-pocket constitutes a tremendous obstacle to management in parts of the Northwest and California. It has been found, however, that certain grades of this material can be satisfactorily used where the stresses are not too high, and some of it is already moving in trade channels.

Likewise, the cutting of veneer for certain utility grades of plywood has been thoroughly demonstrated and is already, in a small way, an accomplished commercial fact. It is not likely that these uses will satisfactorily absorb the very large volumes of white-pocket material found in harvesting old-growth fir in southern Oregon, for example, but research is opening other avenues.

We are always alert to opportunities for further utilization of hardwood dimension stock – the small, sound, pieces cut from between the knots and decayed areas in trees from defective hardwood stands.

In the field of modified wood we think in terms of adding to wood materials that modify its properties for higher usefulness. For example, we have learned to stablize wood dimensionally against the come and go of moisture content; but it costs too much by the processes so far developed, except for special uses where the cost can be borne. There is perhaps nothing that would give greater satisfaction to the wood user than a cheaper method of doing this job.

Similarly, the search for cheap and effective fireproofing treatments continues to receive attention.

(Continued next month)

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Cut-Off Saws	20% to 50%
Matchers and Edgers	20% to 40%
Stacking Kiln Trucks	50% to 100%
Box Car Loading Dock	25% to 50%

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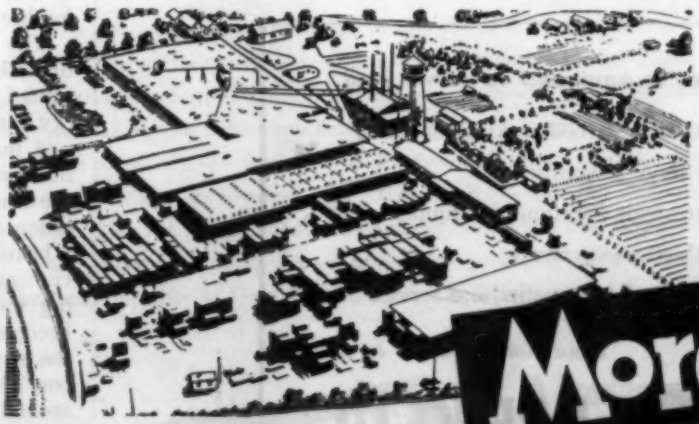

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Modern Dry Kiln

(continued from page 23)

Some operators feel that they are unable properly to condition lumber in an economical way, or in a practical length of time. Disregarding all other items, such as type of kiln, building construction, and other like factors, here is an extract from a saturated steam table, giving the qualities of saturated steam.

Extract From Saturated Steam Table

Material	*Pressure*	*Temp. °F.*	*Total Heat BTU/lb.*	*Volume cu. ft./lb.*
Water	0 PSI gauge	212	180	.02
Steam	0 PSI	212	1150.2	26.83
Steam	10 PSI	240	1160.2	16.31
Steam	100 PSI	337	1188.9	3.9

From this table it is apparent that by adding 970 heat units or b.t.u.'s to one pound of water at 212°, we do not change the temperature, but we have changed the liquid to vapor and made a tremendous volume change. By adding additional b.t.u.'s to this one pound steam that is now in vapor state, and increasing the pressure to ten pounds, the temperature increases but volume conversely decreases. This again holds true when more b.t.u.'s are added and the pressure is increased to 100 pounds pressure.

This chart, or analysis, then bears out:

(1) The efficiency of low pressure steam because it is the 970, or approximately 1,000 b.t.u.'s difference between water and steam that does our work with a minimum of loss through flashing when the traps dump.

(2) Pipe size and quantity of pipe must be figured on the steam pressure available in the design of kilns in order to insure proper heat control and distribution.

(3) Low pressure steam has the best qualities for conditioning, because it has the lowest temperature and thus it will be far easier to get a high wet bulb reading without the sensible heat driving the dry bulb higher and preventing us from getting the wet wet bulb close to the dry bulb, which is our method of determining relative humidity.

With the aforementioned data in mind, the knowlelge can be applied to the problem of reconditioning of lumber.

The reconditioning period during a dry kiln schedule, as is generally accepted, is that portion of the lumber dry kiln schedule which utilizes a high wet bulb and high relative humidity in an effort to put moisture back into the kiln or surface of a board. The addition of moisture in the outer area of a board tends to balance the moisture content of the board, and by softening the outer fibers allows them to become semi-plastic and thus relieve the drying stresses, when the outer core is normally trynig to shrink around the inner core.

In general, all lumber that is to be remanufactured by resawing or taking a heavy cut off of one edge or surface, should be reconditioned. This reconditioning is necessary in order that the board remains stable by having the

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same moisture content on all surfaces. Naturally the reconditioning of all lumber put through the dry kiln is a good "quality procedure", but this can only be answered by each individual operator or management policy.

In general, all Shop, Clear, Select and Moulding lumber should be reconditioned. If knowledge as to the end use of the board is available, this should answer the question as to whether the stock should be reconditioned.

Many operators use a series of conditioning periods during the course of the drying schedule. Others use one period only at the end of the run. Those using periodic conditioning periods during the course of the run, do so in the belief that periodic removal of stresses that have resulted up to that period of reconditioning, are easier to remove and that such periodic reconditioning allows a minimum of stress to occur. Those following the principle of using only one final reconditioning period say that only the final reconditioning, at the desired moisture content of the board, is satisfactory and also that periodic reconditioning treatment extends the drying time out of proportion to benefits. In either event, it is important to obtain a given wet and dry bulb condition with a minimum of lost time and a maximum of control.

The majority of operators are reconditioning their stock in kilns rather than in separate buildings or chambers.

Most kilns in operation today have adequate circulation and dry bulb control, but many are sadly lacking in:

(1) Tight building construction
(2) Proper building insulation
(3) Tight fitting doors
(4) Tight fitting ventilators
(5) Adequate steam spray equipment and control

It must be remembered when a high, water-vapor condition during reconditioning periods is required that water, in the liquid state, only tears down the dry bulb condition within the kiln and presents the problem of evaporating this water during the start of the next kiln charge.

A building that is not tightly constructed and has poor insulation, poorly fitting doors and vents, may assist in dissipating heat when the dry bulb starts to rise, because of the hot steam, but these areas then act as condensors and the dry bulb is lower in these areas, and consequently uncontrolled high humidities will be found in these areas, even though the wet bulb is constant throughout the kiln.

Many operators have found good use of cooling periods or water sprays very helpful in reducing the ambian temperature of the lumber and kiln, prior to starting the reconditioning period. While they accomplish the end result, they have certain inherent disadvantages such as:

(1) Lost kiln production time during cooling.

(3) Increased steam consumption after cooling to obtain the desired wet and dry bulb readings.

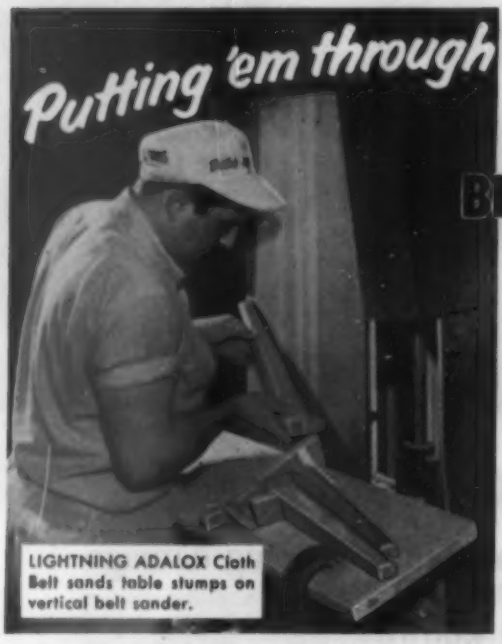
(3, Maintenance of water-spray equipment, which causes continual cleaning of the orifices and other problems.

(4) Tearing down an otherwise controlled dry bulb temperature.

(5) Placing a surplus of liquid water on the kiln interior, which retards the drying of the following charge.

Those operators having exhaust steam at 10 to 25 pounds pressure available, should not encounter any problems in securing proper conditioning within the kiln.

(Continued next month)



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Panel Sessions Create Interest

Society members keep questions popping on debarking—material handling—other topics.

Finances for '53

"On to Memphis in '53"—Successful Fred Heid, Finance Chairman for the 1952 Meeting, and Sales Manager of the Ekstrom Carlson Co., Rockford, Ill., shown flanked by two of his body guards prior to taking the last day's proceeds to the bank. On his left, Gus Seidel, Vice-President, Penokee Veneer and Spliceedwood Corp., Mellen Wisconsin; on his right, 6 ft. 6 inch Hank Puff, representative of Durez Plastics and Chemicals Co., Chicago.

The sixth annual national meeting of the Forest Products Research Society got under way the morning of June 23, 1952, at Milwaukee, Wis., with leading technical and production men in the wood-using field on hand from all parts of the country. The keynote address by Lyle F. Watts, Chief Forester of the Forest Service, U. S. Department of Agriculture marked a final public statement before his retirement June 30. Mr. Watts' address—presented by Dr. J. Alfred Hall, Director of the U. S. Forest Products Laboratory at Madison, Wis.—is published in this issue on page 24.

Afternoon sessions were held separately on lumber handling and on fiberboard and chemical utilization of wood. Lumber handling procedures adapted to the needs of operations ranging from substantial manufacturing operations down to retail lumber yards were described. High labor costs were a common factor in the development of better lumber handling methods all along the line. Objective of research in this field was summed up in the title of one of the papers: "Never Lift a Board."

Questions from the floor:

Session members showed particular interest through their questions on how the manufacturer could arrange to ship packages of lumber small enough to be handled by small, yard-sized lift trucks.

Questions on the floor were also raised on the practicality of plastic covers for open shipments of lumber. Listeners were particularly interested because of savings affected in loading and unloading open cars.

The second day's sessions of the meeting heard twenty technical papers.

During the official luncheon and annual business meeting William J. Grede, President of the National Association of Manufacturers, was the featured guest speaker with a thought provoking address on the American free enterprise tradition.

Dual technical sessions were in progress both morning and afternoon.

The morning sessions were devoted to furniture manufacturing and wood barking. James F. Sechrist of the Red Lion Cabinet Company of Red Lion, Pennsylvania, described the methods used by his company to unload some 200,000 board feet of lumber weekly and feed it into plant production channels at minimum cost.

Stephen D. Pryce, Technical Quality Control supervisor of the John Widdicomb Furniture Company of Grand Rapids described kiln drying methods and moisture control methods used at his home plant to guarantee furniture quality.

Frank T. Parrish, Heywood Wake-

Newly Elected FPRS Executive Board

1952-53 EXECUTIVE BOARD OF FPRS—Rear left to right—*Past President* Roy M. Carter, Professor, School of Forestry, North Carolina State College, Raleigh, N.C.; *South Central Region. Bd. Member*—Moss B. Christian, Director of Research, Chicago Mill & Lumber Co., Tallulah, Louisiana; Newly-elected *Southwest* Regional Board Member Ray L. Shreck, Director Research & Development, Union Lumber Co., San Francisco; Northeast Region. Bd. Member W. Burdette Wilkins, Consultant, Ridgewood, N.J.; Newly-elected North Central Region. Bd. Member J. Alfred Hall, Director, U.S. Forest Products Laboratory, Madison, Wis.; Pacific Northwest Regional Board Member Fred R. Armbruster, Mgr. Dow Chemical Co., Seattle, Wash.

Seated—New President-Elect Robert D. Pauley, Mgr. Special Products Div., Weyerhauser Timber Co., Longview Wash.; New President, Kenneth G. Chesley, Director of Research, Crossett Lumber Co., Crossett, Ark.; Newly-elected Vice President Lester J. Carr, General Mgr., L. J. Carr Co., Sacremento, California. Not pictured: E. E. Dargan, Dargan Lumber Co., Conway, S.C., the newly elected South East Regional Board Member, and Frank J. Rovsek, FPRS Executive Secretary, Madison, Wis.

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field Company, Gardner, Mass., discussed control of glues and gluing in typical furniture factory operation.

Bark removal machines are contributing to a number of evolutionary developments in the wood using industries in connection with the removal of bark from both sawlogs and pulpwood bolts. The removal of bark, it was pointed out by Forest Products Research Society speakers decreases difficulties in pulp mill operations, facilitates the production of lumber, and greatly increases the chance of using sawmill slabs in sawed products, or processed fiber.

J. S. Abel, chief engineer of the Weyerhaeuser Timber Company of Tacoma, Washington, described the hydraulic barkers in use on the West Coast in which whole logs are passed spinning through the machine while powerful water jets literally rip the bark off.

Questions from the floor:

Session members showed interest in operating and maintenance costs of debarkers and questioned the economies in the sawmill with debarked logs. It was suggested that debarked logs were worth $1.00 per thousand to the mill. Maintenance costs were estimated at from 17¢ to 12¢ depending on conditions and type of debarker.

With mechanical type barkers it was asked if the bark could be used with chips to make fiberboard. The answer: No. Chips are too badly burned.

Floor discussion indicated there is much to learn about what debarker will do a specific job best.

Dr. J. F. Saeman, chemist, Forest Products Laboratory, Madison, reported on "Status of Chemical Utilization of Wood Waste."

Saeman pointed out that the use of wood waste should not be considered an end in itself, "since the inefficient use of capital and labor resources is worse than the loss of a potentially valuable material.

The third and final days technical session covered veneer and plywood and a general meeting on varied wood utilization topics in the forenoon.

One of the outstanding technical papers of this morning's sessions was a report on the possibilities for the use of tropical woods in veneer and plywood by Robert W. Hess, of the Mengel Company of Louisville, Kentucky. Dr. Hess, a member of the faculty of the School of Forestry at Yale University for many years, is a world authority on forest products of the tropics. The speaker described a number of tropical woods that are already appearing in this country as well as scores of others that await exploitation. They were compared with similar North American species and for a considerable list their basic physical properties were outlined and their potential uses indicated.

Questions from the floor:

In response to questions Dr. Hess suggested the best way to overcome inertia in the use of new and promising foreign woods is for manufacturers to bring them in and use them in their own products. In this way, the importer will have more interest in solving his own problems with new woods and he would naturally create demand through his products.

G. A. Seidel, Splicedwood Corporation, Mellen, Wisconsin, outlined the advantages and disadvantages of various hot water and steam vat arrangements for softening logs in preparation for cutting into veneer.

J. S. Bethel, North Carolina State College, discussed the theories underlying veneer drying and described a series of drying studies made under his direction.

(*Continued on page 67*)

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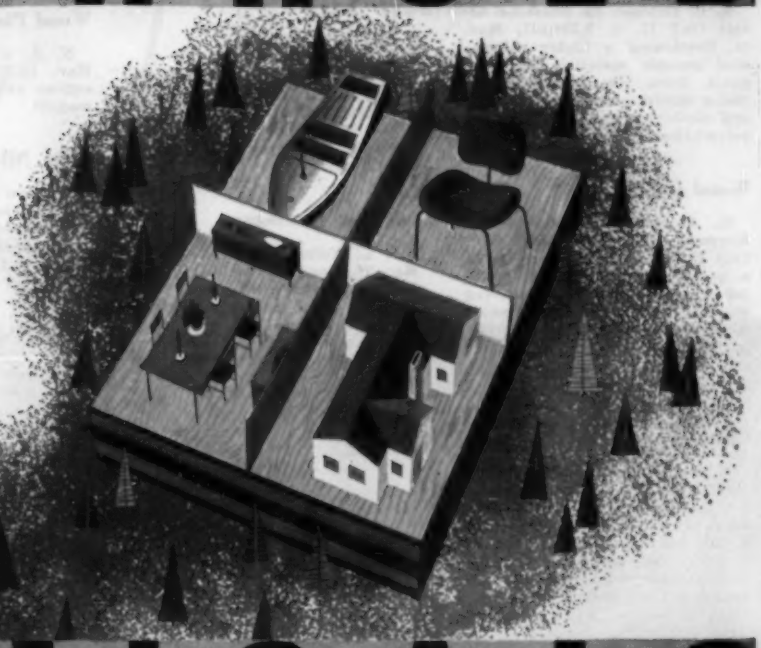

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Patent Digest

by Royden C. Rinker

Lignin Composition

R. C. Danison (to Diamond Alkali Co.) U. S. 2,588,362, Mar. 11. Combining a highly chlorinated organic material, an inorganic flame retardant material, and a lignin-containing material; and combining said mixture with polyethylene.

Wood Grinder

E. A. Worm, Jr. and A. G. Raymond (to Armstrong Cork Co.) U. S. 2,588,448, Mar. 11. In a wood grinder having a grinding wheel, a pocket for receiving wood to be ground and pressure means within said pocket for urging the wood to be ground into contact with the grinding wheel.

Cutterhead

J. Barksdale. U. S. 2,588,465, Mar. 11. In a blade mounting for a cutterhead for a wood turning lathe the combination of a cylindrical body having tangentially disposed blade seats with inwardly extended recesses therein providing a cutterhead.

Notched Plank

S. Erland and H. Tregaard. U. S. 2,588,814, Mar. 11. Interlocking joint between two similarly notched planks.

Tall Oil Nitriles

J. Drew and J. C. Funderburk (to Hercules Powder Co.) U. S. 2,589,233, Mar. 18. Reacting tall oil in liquid phase with ammonia gas in the presence of a slat of tall oil acid.

Logging Carriage

J. L. Yelton, U. S. 2,589,315, Mar. 18. Load pick-up and transporting devices comprising an overhead track cable, a carriage mounted to travel thereon, cable clamp means carried by the carriage operable to grip the cable and support the carriage, and fluid pressure devices carried on the carriage and responsive to movement and stoppage of the carriage.

Rotor Blades

A. M. Young (to Bell Aircraft) U. S. 2,589,316, Mar. 18. Cutting from a piece of wood one lamina for each of a set of rotor blades, said laminae being cut in a juxtaposed relation from said wood piece and assembling one of said laminae together with at least one other lamina in the same relative position in each blade.

Woodworking Tool

A. L. Toussaint. (U. S. 2,589,458, Mar. 18. A woodworking handpower tool consisting of a hand grip piece having a lateral extension an antifriction bearing mounted in the hard grip piece, a slide locking means and an arbor having a cutter thereon.

Wood Planer

N. J. Rivard. U. S. 2,589,865, Mar. 18. A wood planer blade setting gauge including a strong magnet.

Rosin Nitriles

J. Drew and J. C. Funderburk (to Hercules) U. S. 2,590,072, Mar. 18. Reacting the rosin acids of a stabilized rosin with gaseous ammonia in the presence of a metal rosin acid salt.

Wood Treatment

V. Ettel (to Spolek pro chemickou a hutni vyrobu, narodni podnik) U. S. 2,590,162, Mar. 25. Treating wood with aqueous thioarsenite containing calcium, strontium, barium or magnesium ion and allowing the impregnated wood to dry in the air, thus transforming the compound to an insoluble form.

Tall Oil Derivatives

S. T. Putnam (to Hercules Powder Co.) U. S. 2,590,570-1, Mar. 25. Stabilized tall oil nitriles and amines free of polymerization inhibitors.

Coating

W. W. Reynolds and G. E. Lipscy (to General Electric) U. S. 2,591,466, Apr. 1. Coating and impregnating composition containing zein, resinous pinewood extract, and liquid phenolic resin.

Timber Setting Machine

F. E. Sullinger (to Joy Manufacturing Co.) U. S. 2,591,475 Apr. 1. In a timber setting machine, the combination comprising a Timber supporting saddle, power operated elevating means for said saddle, and a power operated clamping device for clamping a timber firmly in position on said saddle during elevation of the latter.

Wood Laminate

J. C. Mead and W. C. Schneider (to American Cyanamid Co) U. S. 2,586,473, Feb. 19. A wood laminate bonded with an adhesive comprising melamine-formaldehyde and glycerol sebacate and cured with radio-frequency energy.

Log Handling

H. L. Baldwin U. S. 2,587,681, March 4. An open-sided pit, spaced channel irons providing a track bridging the pit, a first conveyor mounted on the pit bottom, a second conveyor mounted adjacent to the first, upright stakes carried by the first conveyor and adapted to receive logs and carry them as a unit load, and means for transferring the load from the first conveyor.

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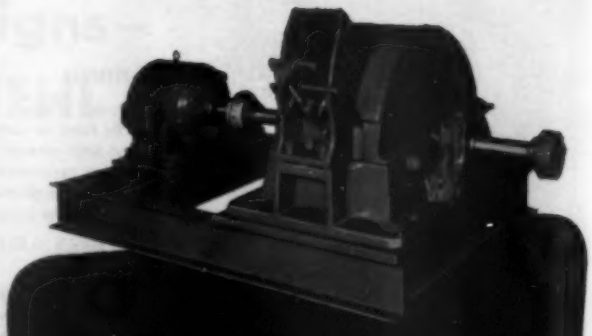
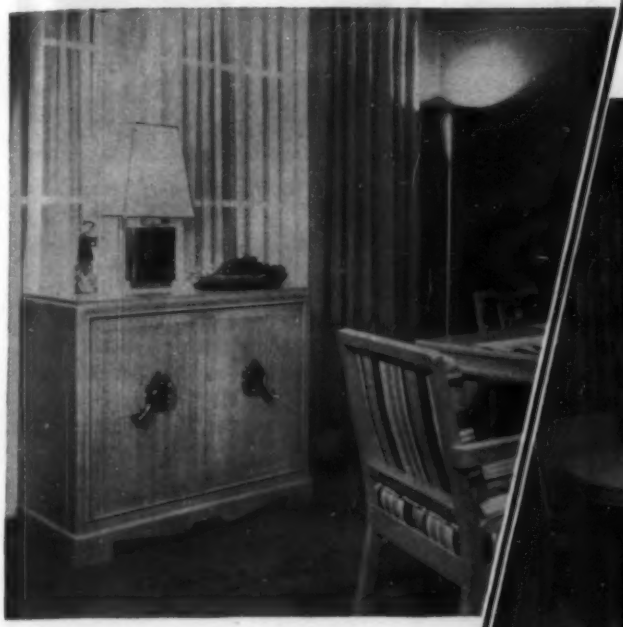


Let M & M Disposal Equipment turn your waste into profits. These machines are built in many types and sizes for slabs, edgings, trim, blocks, veneer, bark, and other combustible waste. Don't overlook the extra dollars that can come from utilizing every available bit of waste. Send us your problem and we'll show you how M & M Disposal Equipment can solve it.

MITTS & MERRILL
1018 South Water • SAGINAW, MICHIGAN

philippine mahogany

for modern furniture



works well

yields well

finishes well

Light, but exceptionally strong, with fine texture and beautiful ribbon grain, Philippine Mahogany is especially well suited for the clean lineal design of modern furniture.

The ability of this fine tropical hardwood to take a wide variety of finishes is of basic importance to the furniture manufacturer. Individual pieces or groups can be finished to meet the demands of the buying public for blond, grey, light, dark, or reddish brown.

PHILIPPINE MAHOGANY ASSOCIATION, INC.

Dept. F-1, 111 West Seventh Street, Los Angeles 14, California

PHILIPPINE LUMBER PRODUCERS' ASSOCIATION, MANILA

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NAMES and EVENTS

Personnel Changes

THE LONG-BELL LUMBER CO., Longview Wash., announces the following promotions: Charles N. Cory as superintendent of logging for the Gardiner Lumber Co., and T. Ray Killian to suceed Cory as superintendent of the Long-Bell operation at Ryderwood, Wash.

RICHARD E. MCARDLE has been appointed as Chief of the Forest Service, U. S. Department of Agriculture. He has been assistant chief since 1944, and began his career in 1924 as a junior forester assigned to the Pacific Northwest Forest and Range Experiment Station in Portland.

O. HARRY SCHRADER, JR., managing director of Douglas Fir Plywood Association, Tacoma, Wash., has resigned to accept a top management post with United States Plywood Corp., at Seattle, Wash. We saluted Mr. Schrader in our October 1951 issue for his research work in the aircraft field for the Government and a wartime project undertaken jointly by the War Production Board and Timber Structures, Inc., of Portland, Ore.

O. H. Schrader, Jr.

WEYERHAEUSER TIMBER CO., Tacoma, Wash., stockholders have re-elected J. P. Weyerhaeuser, Jr., president and retained all other officers and directors of the company.

G. M. DIEHL MACHINE WORKS, INC., Wabash, Ind., has elected Fred A. Collinge as chairman of the board, and John A. Collinge as president and general manager.

RAY SUNDQUIST was appointed sales manager and acting general manager of the Acme Door Corp., Hoquiam, Wash. Mr. Sundquist has been sales manager for many years and now also assumes the duties formerly handled by Herman Snider who resigned as general manager recently.

ROBERT JOHNSTON has been appointed by American Cyanamid Company, New York City, as Technical Service Representative of their Paper Chemicals Dept. of their Canadian subsidiary, North American Cyanamid, Ltd. Mr. Johnston will operate out of the Montreal office, servicing the paper industry of Eastern Canada.

WM. A. EGER has been promoted to assistant sales manager of the American Box Co., Cleveland, Ohio. "Bill" Eger began his service for American Box nearly 35 years ago.

DAVIS LOVE FAIR, JR. was recently

(Continued on page 60)

MAKE "CLEAN" MORTISES
ON FAST SCHEDULES
WITH GREENLEE TOOLS
To make *accurate* mortises easily, swiftly and economically, equip with *high quality* GREENLEE Hollow Chisels and Bits. Long-lived and fast-clearing, these GREENLEE tools add speed to your production, *precision* finish to your products. GREENLEE Hollow Chisels and Bits are made by the originators of hollow chisel mortisers. And GREENLEE produces a complete line of these tools for hard or soft wood and all makes of machines. Write for new illustrated folder M-159 describing these and other GREENLEE tools for mortising, boring, and routing.
Greenlee Tool Co., 2158 Herbert Avenue, Rockford, Illinois.
TOOLS FOR CRAFTSMEN
GREENLEE
HOLLOW CHISELS • MACHINE BITS • DRILLS
ROUTING BITS • MULTI-SPUR BITS • PLUG CUTTERS • COUNTERSINKS • MAKERS OF TECO GROOVING TOOLS FOR TIMBER CONSTRUCTION

"Yes, Dertworth, after due consideration, I think it's time to call Standard to remodel our kilns."

PLAN *NOW* FOR IMPROVED QUALITY AND GREATER KILN PRODUCTION!

• Slack demand times give you a good opportunity to install new Standard Dry Kilns or bring your old natural draft installations up to modern Standard Dry Kiln par.

If either limited kiln output, kiln drying waste or non uniform-drying is your particular problem, it will pay you to consult Standard. You can pave the way to more profits with increased efficiency, greater production, and more uniformly dried kiln loads—all made possible by Standard's automatic reversible cross recirculation principle.

Economical, direct driven fan operation and perfect control of heat, humidity and ventilation assure *perfection* dried lumber, free from any defects. Any time you're not getting your full share of the market dollars . . . any time the quality or quantity of your kiln production lags, it is time to consult Standard engineers. Remember, Standard efficiency wrings out every possible profit penny from every kiln load . . . that's why *you* want Standard Kilns!

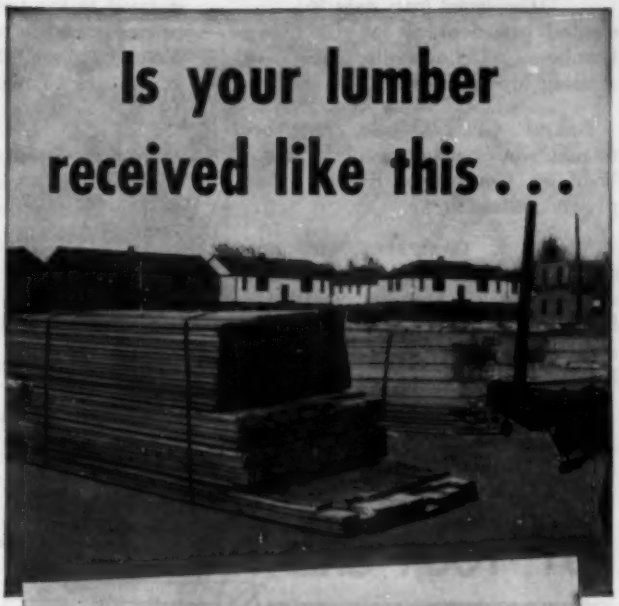
WE SELL THE FIRST *Standard...*
Performance SELLS THE REPEATS!

Write for Illustrated Standard Catalog

Manufacturers of Internal Fan Kilns

STANDARD
Engineers and Manufacturers Since 1907
DRY KILN COMPANY

P. O. BOX 5708 • INDIANAPOLIS; INDIANA



Your customers like SIGNODE'S "Packaged" Delivery Method!*

Broken or badly damaged lumber cuts deeply into your customers' profits. Pilferage en route, or on the building site, is sheer loss. That's why "packaged" lumber shipments—protected by tensioned *Signode steel strapping*—guard both *you* and your customers against loss of profits and good will.

Signode methods of bundling lumber permit mechanical loading of lumber cars and gondolas; speed handling; help meet man power shortage; increase safety of workers, step up unloading; block pilferage; virtually end breakage, save space; simplify inventory taking; build good will.

If you ship raw or finished lumber in any form, ask to have a Signode field man give you the facts about Signode's methods of packaging lumber for delivery. Mail the coupon today.

* TRIED AND APPROVED

SIGNODE *STEEL STRAPPING CO.*

2655 N. Western Ave., Chicago 47, Ill.

Please have your representative call with the facts about packaging lumber shipments. ☐ Also send us a copy of "Important Ideas For You." ☐

Name.....

Address.....

City.....Zone.....State.....

this seal SIGNODE *means security in shipping*

(*Continued from page 56*)

elected president of the D. L. Fair Lumber Co., Louisville, Miss., succeeding his late father.

RALPH G. DEMOISY has been named woods manager of M and M Working Company's Eureka, Calif., plywood division.

WILLIS L. CAMPBELL, vice president and treasurer of the General Insurance Co. of America, Seattle, has been appointed vice president and assistant to the president of Georgia-Pacific Plywood Co.

JOE S. THOMPSON has been appointed to the newly created position of vice president of the Townsend Co., New Brighton, Pa. Mr. Thompson joined the Townsend Company in 1948.

ROBERT H. COERDT has been appointed vice president Cleveland district of the Reichhold Chemicals, Inc., of New York City.

PERRY S. WOODBURY has been elected treasurer of The Diamond Match Co., New York City. Due to continued expansion of the activities of the company. Ward W. DeGroot, who previously held both positions, will continue as secretary of the company.

TIMBER ENGINEERING CO., Washington, D. C., announced that Robert J. Hoyle, Jr., mechanical engineer and forester of Auburn, N. Y., has joined their research staff; and Gordon T. O'Neill, structural engineer of Chicago, has been appointed manager of the Chicago office.

BROOKINGS PLYWOOD CORP., Brookings, Ore., elected the following officers and directors at a recent shareholders meeting, as follows: Edwin Sund, president, Henry Kerr, vice-president, Carl Mason, secretary, T. T. Connolly, treasurer, Neil Martin, Al Olson, Harvey Foster, Guy Way and Art Forsberg, directors.

New Firms

SELMER MANUFACTURING CO., Selmer, Tenn., is now in operation manufacturing ammunition boxes and racks. The new factory is owned by W. L. Suttle of Montgomery, Ala., and his son, W. A. Suttle is manager of the factory.

GREENVALE WOODWORKING CORP., Greenvale, Nassau County, N. Y., has been granted charter of incorporation, listing capital stock as 150 shares no par value. Directors: Edna Sucharski and William Sucharski, Northern Blvd., Greenvale, N. Y., and Waclaw Lutkiewicz, Waldo Ave., Greenvale.

MEDFORD VENEER & PLYWOOD CORP. has started construction on a new plywood plant at White City, near Medford, Ore. Officers include John R. Dingley, Loren Haugen and Kenneth G. Pryor.

GIUSTINA VENEER CO. is now in full operation on veneer and plywood in Eugene, Ore.

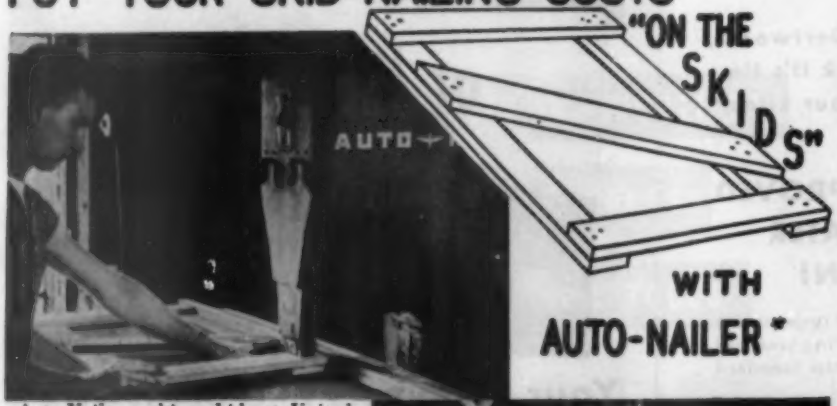
ROSENBERG LUMBER CO., plywood plant at Dillard, Oreg., is now in operation and expects to be in full production by the first of August.

Mergers

SETZER FOREST PRODUCTS, INC. and GLENCO FOREST PRODUCTS were recently merged and the corporation will be named GLENCO FOREST PRODUCTS. The plants formerly operated by Setzer Forest Products at Sacramento and Greenville, Calif., will continue under the name of Setzer Forest Products, a division of Glenco Forest Products. G. C. Setzer will continue as president of the corporation and Hardie C. Setzer will serve as chairman of the board.

(*Continued on page 62*)

PUT YOUR SKID NAILING COSTS "ON THE SKIDS" WITH AUTO-NAILER*



Auto-Nailer making skids at *United Furniture Company, Lexington, N. C.*

Yes, whenever Auto-Nailer goes on the job for making skids, the costs come down and production goes up. Auto-Nailer makes, drives and countersinks 3-NAILS-A-SECOND and will clinch or brad the point, if desired.
Let us show you what Auto-Nailer will do.

Auto-Nailer in action making skids at *Williams Furniture Company, Sumter, S. C.*

WRITE FOR FREE CATALOG

AUTO-NAILER
TRADE MARK REGISTERED
AUTO-NAILER CO.
247 MARIETTA ST., N. W. • ATLANTA GEORGIA

LIKE TO SEE SOME SAMPLES? Send us specimens of your work. We'll be happy to demonstrate Auto-Nailer's virtue and versatility, no obligation.
*Trade Mark registered

Still "Paying Off" at Weyerhaeuser...

50 Foxboro Kiln Controllers in continuous use for 22 years

Ever since 1929, fifty Foxboro Kiln Controllers have been maintaining precise drying schedules in fifty 104-foot dry kilns at Weyerhaeuser Timber Co., Longview, Wash. And they are still serving dependably today!

Such complete accuracy and reliability over long periods of time is the reason why so many leading kiln operators prefer Foxboro. In more than 3000 installations, Foxboro Kiln Controllers are now demonstrating their superiority in eliminating degrade losses and giving faster, safer drying.

Application Engineering Data Sheet 240-3 will help you plan top-efficiency kiln control. Write for it. **The Foxboro Company, 138 Norfolk St., Foxboro, Mass., U.S.A.**

FOXBORO REG. U.S. PAT. OFF. DRY KILN CONTROL

That little wood bung is sure going to help this fellow! And, PAMUDO can help you, too, on your Wood Products problem. For Pine and Fir cut-ard sizes or cut to size—it's PAMUDO.
Our thirty-nine years of service to Industrial users of Plywood and lumber products assure you a dependable source of supply.

IF YOU HAVE A WOOD PRODUCTS PROBLEM, CALL

Pamudo

(PACIFIC MUTUAL DOOR CO)

GENERAL OFFICE • Direct Shipments . . .
Straight and Mixed Cars.
Lumber and Lumber products Fir and Pine Mouldings, Doors, Plywood and Cut-Stock.
Stock Millwork—Cut-to-size Industrial Plywood.

TACOMA BUILDING, TACOMA 2, WASHINGTON
Warehouse stocks of
Plywood • Doors
Mouldings • Stock Millwork

WAREHOUSES IN 5 PRINCIPAL CITIES
- St. Paul 4, Minnesota
- Kansas City 5, Kansas
- Chicago 38, Illinois
- Baltimore 31, Maryland
- Elizabeth, New Jersey

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(Continued from page 60)

Expansions

CHAPMAN MANUFACTURING CO., Corvallis, Ore. announces plans for immediate reconstruction of their plant recently destroyed by fire.

VIKING LUMBER CO. and CLINTON MILLS, INC., extensive timber operators in the southern states announce the recent purchase of the North Douglas Mills, Sutherlin, Ore. The new plant will be known as Clinton Mills, Inc.

CENTRALIA LUMBER MILLS, INC., purchased the Walton Lumber Co. mill at Centralia, Wash., and filed incorporation papers in Olympia, Wash., with capitalization of $50,000. Incorporators are Carl Frantz, Jr., John W. Garrick and Harold L. Davidson, Portland.

OLIN INDUSTRIES, INC., East Alton, Ill., announced the organization of the Forest Product Div. with headquarters in Shreveport, La., as the eighth operating division of Olin Industries. The Forest Products Div. will be responsible for the operation of the properties and facilities of Arkansas, Louisiana and Texas, acquired through merger with Frost Lumber Industries in Jan. 1952. John W. Hanes was appointed vice president for Southern operations, F. T. Whited, former president of Frost, was named resident director, and Robert H. Evans was appointed general manager of the new division. Mr. Evans has transferred his office to Shreveport, La.

STANLEY, Inc., has just added one building and installation of new equipment to their plant at Pulaski, Tenn. This firm manufactures tool handles.

MONSANTO CHEMICAL COMPANY has established a new plasticizers bulk station at Perth Amboy, N. J., which is to service the New York area by compartment tank truck.

WESTERN DOOR & PLYWOOD, Portland, Ore., has purchased the plywood veneer plant of the Harry Holt Lumber Co., Creswell, Ore. The plant was built two years ago. Holt will continue in the logging and sawmill business.

HANSARD SPRUCE MILLS, LTD., is negotiating for a mill site at Chase, British Columbia, and jobs for about 300 men would be provided. The company plans to run a hardboard plant to make Cedartex from waste forest products.

FAIRHURST LUMBER CO., Eugene, Ore., announced that two new sawmills, each an eight-foot automatic and designed to operate entirely on second and third growth timber, will be operating in Bardley Lake, Ore. within a few months.

Associations

W. S. BROMLEY, who has been active secretary and forest engineer for three and one-half years, is appointed executive secretary and treasurer of the American Pulpwood Association, New York, N. Y.

EMORY E. MOORE, Fiddes Moore Co., Chicago, was elected president of the National Plywood Distributors Association at their annual meeting in San Francisco, Cal., June 22-24, 1952. ROBERT C. WHITMEYER, J. R. Quigley Co., Gloucester City, N. J., was elected vice-president, and B. E. BABBITT was re-elected managing director.

Miscellaneous

RINEHIMER BROTHERS MFG. CO., Elgin, Ill., one of the largest special millwork plants in the midwest, celebrated its 85th Anniversary on June 14th. CHARLES A. RINEHIMER, president, treasurer and general manager,

a UNION machine . . .
TO MEET ANY WOOD GLUING NEED

UNION SERVES OVER 2,000 SATISFIED CUSTOMERS

UNION Model 11 Conveyor Glue Spreader With Electric Eye!

Designed to facilitate edge gluing of core stock or similar products. Glue supply pan is jacketed for cooling resin glues or maintaining heat on animal glues. Electric eye is used for automatic stop control. Infeed conveyor, 60" long. Outfeed, 96" long. Height can be 34" or 42". Other sizes available if desired. NOTE: Any Union spreader is available equipped with rubber-covered doctor roll, if desired, at no extra cost.

UNION AIR-POWER MIXER

Revolutionary air cylinder drive eliminates expensive electric motor and electrical connections of any kind. Mixes inflammables safely—no spark or static. Mixes any adhesive an oscillating beater can handle. Pressure discharge works while mixer oscillates. Speed can be varied from 0 to 90 oscillations per minute. Working capacity—Model M10, 10 gal.; M20, 20 gal.

Write for data on the complete Union line. Union agent's name in your territory supplied on request.

Write for your free copy, "The How's and Why's of Wood Gluing," written by Thomas D. Perry.

UNION TOOL CORP.
312 EAST MARKET STREET
WARSAW, INDIANA, U. S. A.

USERS SAY UNION CUTS COSTS — SPEEDS PRODUCTION

has been the executive head of the company since 1916, and president since the death of his father, ALBERT CLARK RINEHIMER, in 1938.

WEYERHAEUSER TIMBER FOUNDATIONS, Tacoma, Wash., has established a $100,000 memorial fund at Yale University, honoring the late pioneer forester Charles S. Chapman. This fund will be used for the advancement of industrial forestry through fellowship grants, research and such other educational activities that may be designated by the dean of the school of Forestry.

WM. S. DOIG COMPANY announces that after 62 years at its present address, the entire plant was moved to its new factory on Maple Ave., Haverstraw, N. Y. The general offices will remain at 894 Manhattan Ave., Brooklyn.

TIMBER ENGINEERING CO., Washington, D. C., will hold a Wood Laminating Course which will cover instruction in adhesives and laminating methods August 4-8, at the research laboratory of Timber Egineering Company, Washington, D. C. Further information and application blanks may be obtained from the company at 1319 18th St., N. W., Washington, D. C.

BRUCE, Miss. namesake of E. L. Bruce Co.—world's largest maker of hardwood floors, celebrated its silver anniversary July 4 with a free barbecue and street dancing. E. L. Bruce, Jr., president of the Bruce Co. was presented with a commemorative plaque by the citizens of Bruce.

NEW BAKELITE FELLOWSHIP for development of uses for resins derived from ethylene and acetylene has been granted at Millon Institute. The fellowship will be headed by Dr. Richard W. Quarles. His associates will be William H. McKnight, Dr. Edward T. Severs, Walter K. Vollmer, Arthur C. Frechtling, John T. Ingram and Gordon P. Bigelow.

MCCLELLAN LUMBER CO.'s mill is being rebuilt at Myrtle Point, Ore., and should be completed in mid-August. The mill was destroyed by fire in May.

Deaths

FLORIAN GUTZWEILER, 72, died at his home in Jasper, Ind. He was a director of the Hoosier Desk Co., also in Jasper.

MAX D. MILLER, President of the Miller Lumber Co., Marianna, Ark., one of the best known lumbermen of the entire region, died at the age of 77 years. His company was founded by his father, BENEDICT MILLER more than 64 years ago.

LEONARD R. STEIDEL, president of the Southern Hardwood Traffic Association and production manager for the National Distillers Products Company, died in Memphis at the age of 54. Mr. Steidel was a leader in the lumber industry throughout his adult life and was in charge of the Containers Div. of the War Production Board in Washington during World War II.

ROBERT ROY BOOTH, 67, vice president of the Booth-Kelly Lumber Co., Eugene, Ore., died recently. Mr. Booth was active in Eugene civic affairs and was a director of the Ochoco Timber Co., Prineville, Ore.

C. L. THOMPSON, 69, director of research of the Pacific Lumber Co., San Francisco, Cal., for the past 20 years, died of a heart attack at the mill in Scotia, Cal. on June 11, 1952.

A Wood Trading Post AD will find Men—Materials—Machinery

Is Your Wood Gluing Department a Production Bottleneck?

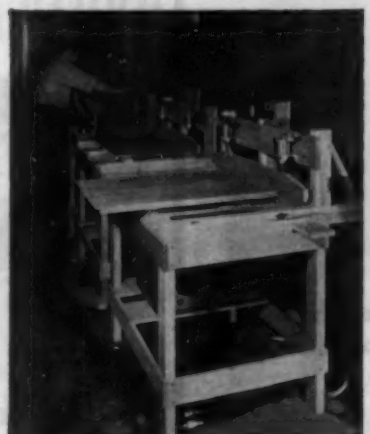
Now ... discover

Thermatron

HIGH FREQUENCY GENERATORS AND EQUIPMENT

BOND WOOD PERMANENTLY IN A MATTER OF SECONDS!

THE OLD WAY at Royal Wood Products Co. Until the wood gluing department was streamlined by installation of THERMATRON equipment it retarded allover production. Two men worked on one assembly, which involved timetaking manual adjustment of clamps, including protective measures to eliminate clamp damage on expensive veneers.



THE NEW WAY! A battery of jigs each equipped with a 500 watt THERMATRON generator, at plant of Royal Wood Products Co. Machines bond wood assemblies in first step in manufacture of TV cabinets. Panels are firmly glued in 20 seconds and ready for next step immediately.

THERMATRON, product of a pioneer in the electronics industry, may revolutionize your wood gluing department just as it has recently done for Royal Wood Products Co., Brooklyn manufacturer of fine television cabinets.

THERMATRON High Frequency equipment sharply reduces unit production time, floor area and manpower needed ... eliminates expensive clamps and most rejects. And, THERMATRON frequently permits construction that reduces the number of reinforcing blocks which only add dead weight and bulk!

Installations of THERMATRON generators and equipment are available under one contract and one responsibility, because Radio Receptor Co. designs and builds the required jigs and fixtures right in its own shop. In many cases the initial cost of THERMATRON equipment isn't much more than the investment in hand clamps it replaces.

For "non-headache" wood gluing outline your problems to us today. Our engineers will gladly make recommendations without obligation ... And be sure to request our latest bulletin No. W-8.

Standard stock generators available from ½ KW to 6 KW output, operating on 110 or 220 Volt lines. Special units supplied for unusual applications.

*T. M. Reg. U. S. Pat. Off.

Thermatron products

RADIO RECEPTOR COMPANY, Inc.

Sales Dept. 251 W 19th St. New York 11, N. Y. - Factory 84 N. 9th St. Brooklyn 11, N. Y.

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Markets

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of June 7, 1952. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

Note: For your convenience each price change is marked by an asterisk (*).

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on hand-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M', on straight cars of upper bracket grades premiums are frequently being paid.

ASH—FIRM TEXTURE

	FAS	No. 1C	No. 2C
4/4-in.	155	110	62
6/4-in.	170	120	67
8/4-in.	180	140	70

BASSWOOD

4/4-in.	160	125	80
6/4-in.	170	135	87
8/4-in.	180	145	90

BEECH

4/4-in	125	100	55
6/4-in.	140	110	60
8/4-in.	167	127	72

CHERRY

Same as Appalachian

RED GUM—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	200	150	70
6/4-in.	220	170	75

RED GUM—QUARTERED

4/4-in.	220	165	75
6/4-in.	250	190	90
8/4-in.	260	200	95

SAP GUM—PLAIN

4/4-in.	110	80*	41*
6/4-in.	125	105	45
8/4-in.	160	140	

HACKBERRY

4/4-in.	110	90	60
6/4-in.	125	105	75
8/4-in.	135	110	75

SOFT MAPLE—WHAD

4/4-in.	130	110	67
6/4-in.	145	120	77
8/4-in.	155	125	80

SOFT MAPLE—WHND

4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in	135	110	80

PECAN

4/4-in.	110	90	40*
6/4-in.	130	110	60
8/4-in.	155	130	65

POPLAR—PLAIN

	FAS	S&S	No. 1C
4/4-in.	165	155	135
6/4-in.	185	175	140
8/4-in.	205	195	150

SYCAMORE—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	115	95	60
6/4-in.	125	105	60

TUPELO—PLAIN

TUF TEXTURE—DEEP SWAMP

4/4-in.	100*	80*	41*
6/4-in.	125*	105*	45*
8/4-in.	160	140	

WILLOW

4/4-in.	140	120	60
6/4-in.	143	122	67
8/4-in.	150	125	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of hand-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried & graded in accordance with

Model RC-1

Delmhorst Moisture Detector has "paid for itself time and again"

Says Mr. Herbert Seidel
Reisen Hardwood Lumber Co., Union, N.J.

". . . We use it constantly to check the moisture content of incoming lumber, to select air dry stock from the yard stocks and to check outgoing lumber," writes Mr. Seidel.

"In the kiln operation, the Moisture Detector has proved to be a necessity (especially when used with the 26E electrode) for making quick checks on lumber entering the kilns . . . saves the kiln operator hours in starting a new charge in the kiln . . .

". . . We know that it has paid for itself time and again in every operation of our business that requires knowledge of lumber moisture content."

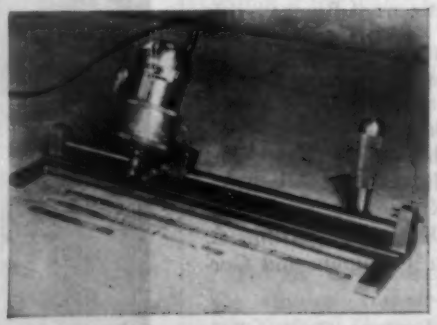
Some Moisture Detector Advantages

- Quickly and accurately measures moisture content of any wood product from 6-45% (veneers, lumber, timbers, etc).
- Direct reading in percentages on large 4½ inch dial. No calculations required.
- Ideal for dry kiln testing—wet cores can be tested without cutting lumber.

Guaranteed for one year. Write for full information.

DELMHORST INSTRUMENT COMPANY
605 CEDAR STREET ★ BOONTON, NEW JERSEY

The *American* PATCHING SYSTEM



AMERICAN'S 3/4"—3 Stop Router

A REVOLUTION IN PLYWOOD AND LUMBER PATCHING

The AMERICAN Patching System is revolutionizing the woodworking industry. Stock is upgraded—better sales on previous low grades

Write Today! Don't Delay!

American MANUFACTURING COMPANY INC.
TACOMA 2, WASHINGTON, U.S.A.

IN CANADA:
American Mfg. Co., Ltd.
R. N. Pinton, Manager
Vancouver, B. C.

IN THE SOUTH-EAST:
American Mfg. Co., Inc.
Henry H. Keenan, Manager
Greensboro, N. C.

NHLA rules of inspection. Prices in dollars per M', on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

TOUGH ASH

	FAS	FIF	No. 1C	No. 2C
4/4-in.	160	150	110	67
6/4-in.	180	170	122	73
8/4-in.	190	180	147	85

BASSWOOD

				No. 2A
4/4-in.	180	170	130	84
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH

				No. 2C
4/4-in.	145	135	110	75
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH

4/4-in.	205	195	140	80
6/4-in.	220	210	150	85
8/4-in.	230	220	155	90

BUCKEYE

4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	75

CHERRY

4/4-in.	220	210	150	90
6/4-in.	240	230	170	95
8/4-in.	250	240	180	100

CHESTNUT

	FAS	No. 1C	FAS WHND	1C & B WHND
4/4-in.	165	115	135	125
6/4-in.	170	120	140	130
8/4-in.	175	125	150	140

HICKORY

	FAS	FIF	No. 1C	No. 2C
4/4-in.	125	115	78	53
6/4-in.	145	135	86	55
8/4-in.	165	155	90	60

HARD MAPLE

4/4-in.	190	180	125	80
6/4-in.	200	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE

4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	72

RED OAK—PLAIN

4/4-in.	185	175	120
6/4-in.	200	190	135
8/4-in.	215	205	145

WHITE OAK—PLAIN

4/4-in.	200	190	125
6/4-in.	220	210	145
8/4-in.	235	215	155

WHITE OAK—WHND

	FAS	FIF	C & B	No. 1C
4/4-in.	115	105	90	85
6/4-in.	140	130	120	110
8/4-in.	150	140	125	115

YELLOW POPLAR—PLAIN

	FAS	FIF	No. 1C	No. 2A
4/4-in.	210	200	140	88
6/4-in.	220	210	150	93
8/4-in.	230	220	160	..

POPLAR SQUARES

	FAS	No. 1C & SD
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED

	FAS 6' & up	FIF 6' & up	No. 1C	No. 2C
4/4-in.	350	305	185	80
6/4-in.	370	325	210	95
8/4-in.	385	340	235	100

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carload quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH

	FAS	No. 1C	No. 2C
4/4-in.	145	105	73
6/4-in.	155	120	83
8/4-in.	160	130	88

BASSWOOD

4/4-in.	180	125	78
6/4-in.	190	135	88
8/4-in.	195	145	96

BEECH

4/4-in.	145	100	68
6/4-in.	160	115	78
8/4-in.	165	120	80

BIRCH

4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM

4/4-in.	135	115	65
6/4-in.	145	125	75
8/4-in.	150	135	80

SOFT ELM

4/4-in.	125	105	71
6/4-in.	135	115	81
8/4-in.	140	120	86

HARD MAPLE

4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	82*

SOFT MAPLE

4/4-in.	155	120	72
6/4-in.	170	130	82
8/4-in.	185	140	90

RED OAK

4/4-in.	175	125	77
6/4-in.	185	145	83
8/4-in.	195	155	85

*Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.

"A BUCK WELL SPENT"...ON

MEYERCORD DECALS

SPRINGS MILLS CREATES NOVEL PROMOTION WITH SPRINGMAID CUTIE DECALS!

Full-color Decals of luscious Springmaid girls featured in Springs Mills' national ads are a fast moving, self liquidating premium at 25c for a set of six to decorate glasses! For special promotions *and* to add new sales appeal to your products—investigate versatile low-cost Meyercord Decals now!

Send 25c for complete set of 6 Springmaid Cuties—each different!

FREE!

Idea-packed, full color Catalog comes with or without Cuties. Dept. 51-8

THE MEYERCORD CO. • CHICAGO 44 • ILLINOIS

NORTH COAST DIRECT-FLO® DRY KILN

Reversible Circulation • Uniform Drying

NEW KILNS • KILN MODERNIZATION • KILN ACCESSORIES

The North Coast Dry Kiln is the most efficient kiln in operation today. The fans are positioned at the side of the lumber loads so that air follows the shortest possible "Direct-Flo" path. This insures uniform efficient drying for the lowest possible power consumption.

We can manufacture kilns to your specifications.

Write for details to Dept. W-1.

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OFFICES AND WAREHOUSES IN SAN FRANCISCO, CALIFORNIA LOS ANGELES, CALIFORNIA HONOLULU, HAWAII - MANILA, P. P. VANCOUVER, BRITISH COLUMBIA

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4000 W. MARGINAL WAY SEATTLE 6, WASH.
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and many other materials.

Write us if you have an adhesive problem. Samples will be submitted without charge.

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MONTGOMERY BLO-HOG

Eats Up Everything

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer Round-up and Sandy Bark.

Conveyor-fed, no attendant is required to "feed the hog."

Sturdy breaker lugs give absolute protection from major damage caused by tramp steel.

Maintenance costs unbelievably low.

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Jacksonville Blow Pipe Co.
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turn LOSS INTO PROFIT
with SYNVARITE 170 HL • SYNVAROL WR 515 C
SYNVAREN CP-25
WOODWASTE BONDING RESINS

Wood waste in the form of shavings, wood-chips, sawdust, wood-flour or ground wood can be successfully bonded regardless of hard or soft types of wood with our newly perfected Synvarite 170HL, a phenol-formaldehyde resin in powder form or our Liquid Resins: Synvarol WF-515-C, a urea-formaldehyde type and Synvaren CP-25 a phenol-formaldehyde type. Articles, such as door panels, boards, table tops, toilet seats, floor tiles, etc., using these resins are highly water resistant.

SYNVAR RESINS

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Step up production with Memphis Hardwood's FINE OAK Furniture Dimension

Manufacturers save time and money with Memphis Hardwood's semi-finished Dimension stock. Waste no time. Start work when stock arrives. No Offal to pay freight on.

★ Kiln Dried ★ Flat
★ Glued-up ★ Solid
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Let us quote on your specifications
Chickasaw Brand Oak Flooring.
Pre-finished and Unfinished.

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DON B. WALLACE INC.
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Detroit, Michigan

F.P.R.S. News

(Continued from page 52)

George Kitazawa, research associate from the college of forestry, State University of New York at Syracuse, discussed mechanical vibration tests for wood as a substitute for breaking tests which destroy the test material. In sonic tests made under his direction, he reported, the elasticity of small beams was readily determined by dynamic measurements using the sonic technique.

Dr. Merrill A. Millet of the Forest Products Laboratory at Madison, discussed brown stain in sugar pine, a discoloration of a chemical nature that has so far defied control except by expeditious handling of logs and lumber in the harvesting and manufacturing operations.

Louis E. Wise and associates of the Institute of Paper Chemistry at Appleton presented a comprehensive chemical survey of a considerable list of tropical woods that had been investigated for the Office of Naval Research.

Dr. Ralph Lindgren of the Bureau of Plant Industry, U. S. Department of Agriculture, described the spraying of southern pine pulpwood bolts with a fluoride fungicide. One of the side effects of this decay treatment was an apparent increase in the permeability of the wood to wood preservatives, a finding that would have application in the wood preserving field rather than the pulp industry. The increase appeared to be due to action of a specific fungus growth of which was stimulated by the fluoride treatment.

Lincoln A. Mueller, Forest Service Utilization Chief from Tucson, Arizona, presented a survey of the opportunities for improved use of foerst products in his territory. One of the apparent opportunities lies in the use of available wood waste for the production of wood molasses by hydrolysis. Considerable quantities of waste are available as well as an excellent market for molasses in the southwestern livestock industry and favorable conditions with respect to competition from other stock food molasses.

Concluding paper of the day's sessions was presented by E. G. Wiesehuege] of the Tennessee Valley Authority. He described a specially designed machine by which small pieces of low grade Valley hardwoods were continuously glued and laminated into a high utility flooring material. The process offers the promise of a new outlet for low grade hardwoods that encumber the improvement of forests in many parts of the United States.

Find out just how GOOD dimension can be...

Make your next order

MANSFIELD
Micro-Made
DIMENSION

• Hardwood or Pine
• Glued-Up or Solid
•

Made to your exact requirements by careful craftsmen, and delivered on schedule.

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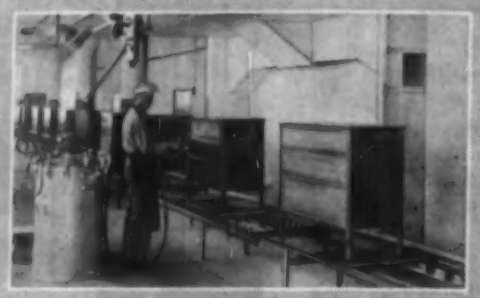

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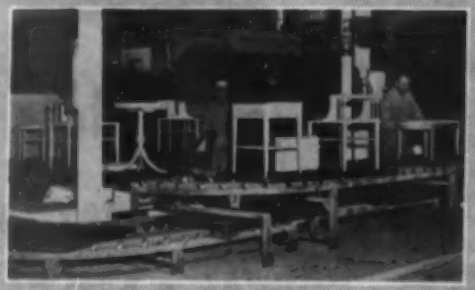
CRAFTIQUE, INC.



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Engineered, Fabricated and Installed by Koch

Labor savings up to 50% . . . 16 or more operations without removing product from conveyor pallet . . . patented "close-pack" feature for faster drying — these are a few of the many time and money saving features of the remarkable DeBURGH complete finishing system. No danger of dirt falling from overhead conveyors. No lateral sway or pendulous movement. No lifting or pushing heavy pieces. Learn now what a DeBURGH system can do for your finishing department.

Phone, Wire or Write Today!

EVANSVILLE 4, INDIANA

GEORGE KOCH SONS, INC.

New and Improved Products

New Knife Grinder

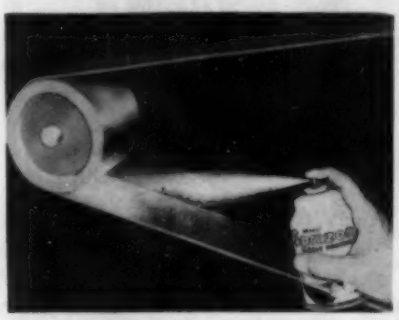
Samuel C. Rogers & Co. announces the introduction of their latest medium duty knife grinder,—the "NL" grinder. This new automatic, all-steel, welded cabinet-base machine is said to be particularly adapted to the fast, accurate care of many types of knives including rag cutter knives, trimmers, light veneer knives, light chipper knives, hog knives, light shear blades, paper and stock cutter knives and many others.

The "NL" is designed for speed and precision. It incorporates the latest electric table drive including special control switches and 1½ HP special reversing motor. Table speeds are variable and table reversals are smooth and shock free. Further information is available by contacting Samuel C. Rogers & Co., Dept. W, 183-205 Dutton Ave., Buffalo 11, N. Y.

New Band Saw

Heston & Anderson, Dept. W, Fairfield, Iowa, has announced the addition of a new band saw to the firm's line of machines. Known as the 14K Band Saw, it is a 14-inch band saw equipped with a large 20 x 23-inch tilting table made of heavily ribbed cast iron. It has a capacity of 12⅝ inches vertically (table top to wheel guard) and 13¾ inches horizontally (blade to main guard.)

The product's frame and base are made of heavy grey iron and steel for maximum stability. The motor base is easily adjustable and requires no belt tightening device. The upper and lower wheel guard is one piece and opens instantly, on a hinge, for changing blades.



New Belt Dressing

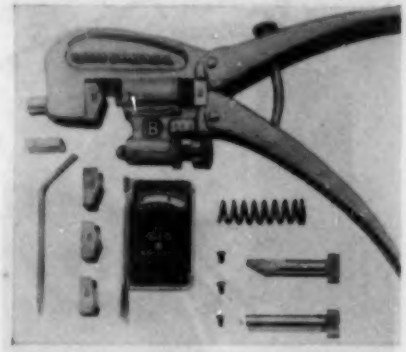
A liquid belt dressing, Grako (R) Clear, is now being marketed in a 12 oz. spray container. Depressing valve with forefinger directs a powerful spray at belts and pulley faces. The package contains enough liquid to treat approximately 350 square feet of belting.

A spray is directed at the smaller pulley face where slippage is most likely to occur. A fine mist of dressing is transferred evenly to the belt where it is quickly absorbed by the leather fibres. Grako Sprazon is a leather preservative containing no rosin or other injurious materials, it is claimed. It is sold by industrial distributors. Literature is available from the Graton & Knight Co., Dept. W, 356 Franklin St., Worcester 4, Mass.

New Roller Coater

A roller coater for applying sizes, sealers, glues, cement, stains, varnishes, lacquers and paints to all flat surfaced material is announced by The Black Brothers Co., Dept. W, Mendota, Ill.

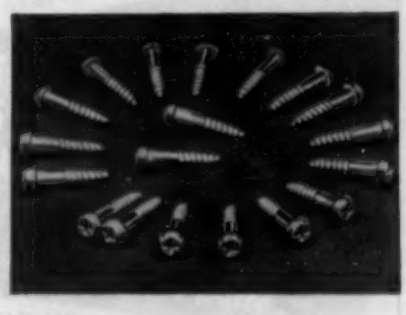
It coats material up to 120 inches wide at speeds to 400 lineal feet a minute. These coaters can be equipped with thermostatically controlled steam, gas or single or poly phase electric immersion type heaters permitting up to 250 degrees F. If heat is not required in the coating process, water cooled doctor rolls can be supplied.



New Pliers Set Saws

Recently announced is a low-cost device to set saws quickly and with scientific accuracy. It is known as the Lasso Universal "Saw Doctor" setting outfit, complete with punches and dies adaptable to any set-tooth circular or band saw. It is being sold direct to mills and other users by Wilco Machine Works, Dept. W, 1301 North Hollywood St., Memphis, Tenn.

The Lasso pliers have a micrometer adjusting dial and the kit includes an indicator which checks the amount of set to .1 millimeter. The device is imported from Sweden. It is designed to effect a saving in time, and to make possible a degree of accuracy never before attainable.



Wood Screws

GRC die cast zinc alloy wood screws are designed for a wide range of uses, offering many application advantages for manufacturers using such materials as soft woods, composition board and plastics.

In addition to the No. 1 x ¾ wood screws illustrated, which have round Frearson heads, GRC is planning to produce a complete line of sizes. The design flexibility of the die casting process permits production of any type of head and driver recess. For detailed information write, Gries Reproducer Corporation, Dept. W, 780 East 133rd Street, New York 54, New York.

Sawdust Pick-Up System

The Curtis Companies, Inc., plant at Wausau, Wisconsin, is said to have solved its refuse problem with the installation of a Day sawdust and shavings pick-up system and carloading unit.

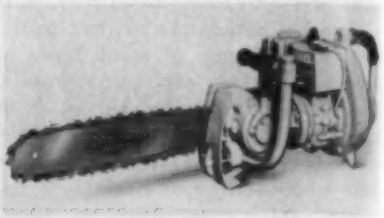
The system picks up refuse from all cyclones and delivers it several hundred feet to a Day Dual-Clone which in turn discharges to three Day bins as shown above. The refuse from the bin bottoms is conveyed by a screw conveyor into the carloading air-line. Air is returned from within the boxcar to the fan unit so as to control the dust which would otherwise escape from the car. This unit has a capacity of 4 boxcars per working day.

Spray Gun Supply Pump

A new portable heavy-duty spray gun supply pump that works directly from 5 or 10 gallon original containers has been announced by the Gray Company, Inc., Dept. W, 1012 Sibley St., Minneapolis 13, Minn.

The air-operated, double-action, reciprocating pump is designed for easier handling of paints and materials. The new supply pump can be used as a portable sprayer with the Sta-Level hand truck. One man easily handles the paintmaster. Large rubber tired wheels roll over rough areas smoothly; for stationary operation, the truck simply disengages from the trunnion arms—no bolts or pins to remove or lose.

The separate air-operated, dual-bladed agitator keeps the materials perfectly mixed—independent of paint pump operation. The blades, of non-sparking aluminum, are adjustable to any depth.



Lightweight Chain Saw

The new Timberhog Bantam Chain Saw introduced by the Reed-Prentice Corp., Dept. W, Worcester, Mass., claims a number of features for one-man operation. Fingertip controls

Facilities To Serve You

DRY KILNS—20 Tracks of Latest Moore Design Capacity 1 million feet per charge.

DRY SHEDS—Ample storage Adjacent to Carline Means Dry Lumber for you.

DRY LOADING DOCK—Can Load 19 Cars Under Roof. Assures you quick Shipment Regardless of Weather.

THERE IS NEVER A LET DOWN IN OUR QUALITY-PRECISION MANUFACTURE

The Ralph L. SMITH Lumber Company

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Mills: Anderson & Canby, California
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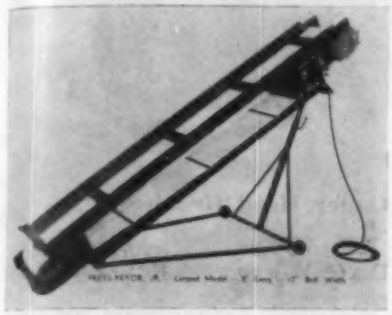
Tannewitz
HIGH SPEED
BAND SAWS

Saws faster, smoother and easier than conventional band saws. Regularly increase production from 50% to 100% with consequent reduction of costs. Built by sawing machinery specialists. Write for circular.

THE TANNEWITZ WORKS
GRAND RAPIDS 4, MICHIGAN

and full 360° swivelling provide easy handling in all cutting positions. The swivelling mechanism can be instantly set at any angle for notching and felling cuts. Complete with an 18-inch guide bar and chain, this gasoline driven saw weighs only 27¼ lbs. Use of aluminum and magnesium parts makes possible light weight and yet affords ruggedness to withstand hard usage.



Lightweight Belt Conveyor

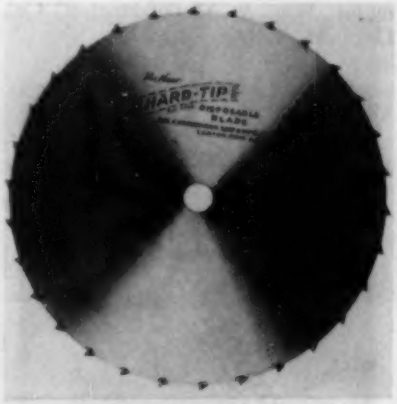
A new, lightweight cleated belt conveyor, designed to move a peak volume of small parts of scrap between production machines or into containers has just been announced by The Rapids-Standard Company, Inc., Dept. W, 342 Rapistan Bldg., Grand Rapids 2, Mich. Called the Press-Veyor, Jr., this new conveyor is rugged, low in cost, and highly portable for maximum usefulness in many types of industry. Its compact construction permits installation in tight spots, while the cleated belt allows operation at steep inclines.

It is manufactured in 4, 6, and 8-foot lengths and 4, 8, and 12-inch belt widths to handle a wide range of products.

New 15-inch Drill Press

The Walker-Turner Division, Kearney & Trecker Corp., Dept W., Plainfield, N. J., announces a completely redesigned line of 15 inch Drill Presses.

The new line of drill presses has a ⅝ inch capacity in cast iron and will drill to the center of a 15 inch circle. Spindle travel is 6 inches or 4¼ inches. The 6 inch spindle travel model is completely new and incorporates a calibrated depth gauge and a micrometer type depth stop. All models feature a completely enclosed motor switch housing built into the head casting. Belt guards are made of light weight, strong steel stampings and are standard equipment.



Disposable Saw Blade

A new development in wood-working saws is the disposable hard-tip blade recently announced by Heinemann. Unusually low in cost, they are simply discarded when dull, like used razor blades.

An exclusive new process of manufacturing and hardening is said to

PENOKEE
VENEER COMPANY
MANUFACTURERS OF
ROTARY, SLICED AND
HALF-ROUND
VENEERS
IN
BIRCH—MAPLE—BASS—ASH—
OAK—ELM—WHITE PINE
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P. O. BOX 110
TELETYPE, MELLEN 29—PHONES 205 - 3313

SHIMER HEADS
GIVE YOU TOP PRODUCTION
. . . clean, accurate, fast cutting!
THE SHIMER
HIGH-SPEED VISE GRIP
MATCHER HEAD
cuts across the entire width of the pattern!
AVAILABLE IN FOUR OR SIX-BIT MODELS with milled-to-pattern bits for high-speed matching, jointing and shiplap production!
There's a Shimer Head or Cutter for every cutting problem, accepted for their dependability and long, profitable service, trusted and approved for their versatility! Shimer products are custom-built for top production and lowest job costs . . . with deliveries you can depend upon to meet your production schedules!
WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!
SAMUEL J. SHIMER & SONS, Inc.
70 RACE STREET ★ MILTON, PENNA.
SHIMER

enable these saws to stay sharp from four to six times longer than conventional saws. These new saws are said to save the time required taking saws to the service shop, waiting for repairs, and the expense of repeated sharpening. They are available from dealers, or write direct to the Heinemann Saw & Manufacturing Co., Dept. W, Canton 6, Ohio.

New "Twin-fast" Wood Screws

Announcement of the addition of "Twin-fast" wood screws to its expanding line of fasteners, is made by Central Screw Company, Dept. W, 3501 Shields Ave, Chicago 9, Ill.

The outstanding characteristic of "Twin-fast" wood screws is embodied in two parallel threads which start at opposite sides and spiral down the shank to converge at a common axial point. The two threads contain twice the pitch of standard wood screws to engage double the amount of material area with each turn of the driver, thereby increasing screw driving speed to twice that of standard, single-thread, wood screws.

Storage Life of Adhesives

The Snyder Chemical Corp., Dept. W, Bethel, Conn., is said to have effected improvement in the storage life of the standard Synco adhesives. The results of long range and accelerated testing show storage life to be at least double that available heretofore, it is claimed. Other advantages are demonstrated in a comparable increase in pot life of the adhesive after hardeners have been incorporated. The quality of the bonds obtained and the curing schedules of Synco resins are otherwise unchanged. Samples of these adhesives with extended storage life described are available on request.

Cutter Head Grinder

The Dependable Machine Co., Dept. W, Greensboro, N. C., announces the release of Bulletin C-8 which pictures and describes the recently improved Cutter Head Grinder Model 104-A. This machine has been in the field for the past seven years, and was originally designed as a light duty cutter head grinder. When it was re-designed, it was decided to make the machine a medium-heavy duty grinder of mod-

"OLIVER"
NO. 144 8-INCH HAND PLANER AND
JOINTER

A heavy-type Jointer for accurate planing of small stock

You'll find this convenient "Oliver" 8-inch Jointer speedy and accurate. Work slides easily over the extra long (60-inch), highly polished tables. Three-knife, circular safety cylinder runs in self-aligning double row ball bearings. Bevel fence is adjustable from square to 45° across the table. Table lowers for rabbeting up to ½-inch. Fitted with new automatic knife guard for utmost safety. *Write for Bulletin No. 144.*

"Oliver" makes a full line of Jointers from 6-inch to 30-inch sizes.

OLIVER MACHINERY CO., GRAND RAPIDS 2, MICH.

WILLOW
IS FEATURED IN '52
FOR
FURNITURE
CABINETS
PANELING
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CORES

Our three mills are located in the Mississippi, Atchafalaya and Red River basins of Louisiana which produce the finest Willow in America.

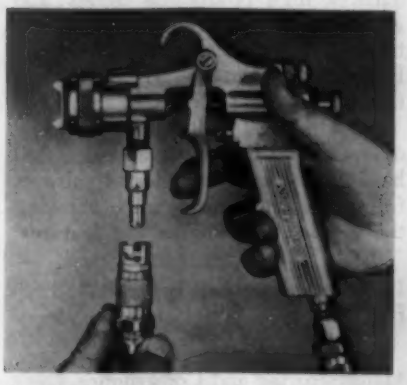
Large and well assorted stocks of this fine willow are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 4/4" to 8/4" or include in mixed cars with Port Barre white ash and other Southern Hardwoods. Prompt attention will be given to all inquiries.

The Port Barre Lumber Industries, Inc.
Manufacturers of Southern Hardwoods
Port Barre, La.

ern design, since the company has another model light duty grinder. The 114-A is designed to take care of grinding side heads, moulder and profiler heads and thick and thin knives for medium size plants.

Sawdust Salad Bowls

Sawdust, has been blended with a brand new synthetic to produce these salad bowls and utensils. Molded by Ability Products, Dept. W, Pasadena, Cal., the bowls and utensils are made of granulated wood and Monsanto Chemical Company's Lauxite UF-71, a new powder urea binder. The new resin permits manufacturers to design and mold products of wood waste that were formerly impractical or uneconomical with wood in its natural form. Conventional compression molding methods are used.



New Fluid Connectors

It is said that a quick twist and a paint spray gun can be switched from one color to another, without fuss or tools. This advance in spray gun equipment has been developed by the DeVilbiss Co. Dept. W, 459 Spitzer Bldg., Toledo 4, Ohio.

Made of lightweight, durable aluminum, the new fluid hose connector is self-sealing by virtue of a spring-type, ball valve set against a synthetic rubber seal. When the connector is locked in place the valve is opened for use. The special rubber seal is impervious to paint, solvents or other materials used in spraying.

Fire Extinguisher

The Redi-Flo, a new, fast-flowing dry chemical fire extinguisher is now being marketed by Stop-Fire, Inc., Dept. W, 125 Ashland Place, Brooklyn, N. Y. Designed to eliminate

CARBIDE TIPPED SAW BLADES

with any others and you'll agree they're outstanding. Cut with equal ease thru plywood, laminated wood, teak, fireproof lumber, linoleum, plastics etc. Huther Quality in Carbide Saws is a "standard" among leading craftsmen.

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faulty operation due to clogging, the new unit contains Dri-Kem, an improved dry chemical. The smooth-flowing chemical is obtained by introducing an exclusive additive which coats the powder particles and forms a water-resistant skin over each crystal.

NEW LITERATURE

Freight Rate Map

A new issue of Union Pacific Railroad's "Freight Rate Territorial Map of the United States" is now being distibuted.

The map shows in color the territory and jurisdiction of the various freight rate bureaus and also the trans-continental groupings published in accordance with "Articles of Organization and Procedure" filed with the ICC in compliance with section 5A of the interstate commerce act.

This 1952 publication of the map defines the new trans-continental groups as published in trans-continental Territorial Directory No. 5 effective Dec. 1, 1951, and also includes a chart showing corresponding groups in Trans-Continental Territorial Directories Nos. 40 and 41.

Copies may be secured from any Union Pacific office without charge or by writing W. T. Burns, vice president-traffic, Union Pacific Railroad Dept. W, Omaha, Neb.

Knife and Face Grinder Bulletin

A new piece of literature is just prepared that features the Rogers massive high production Series 220 grinder embodying various new features manufactured by Samuel C. Rogers & Co. Dept. W, 183-205 Dutton Ave., Buffalo 11, N. Y.

Bulletin 220 fully describes the operation of the massive series 220 heavy duty knife grinder. It also is fully illustrated with cuts showing the grinder, adaptations and features

Impregnating Equipment Bulletin

Process Industries Engineers, Inc., Manufacturing and Construction Div., Dept. W, Pittsburgh 6, Pa., has issued a bulletin on impregnating equipment. The bulletin, No. 51-B, describes the company's vacuum pressure impregnating system, and explains its operation. The bulletin also contains helpful information on the impregnation of electrical equipment, metal castings, leather and textiles, lumber, and other materials.

Carbide Tipped Saw Catalog

The Simonds Saw and Steel Co., Dept. W, Fitchburg, Mass., now offers an illustrated 12-page catalog showing their complete line of carbide tipped saws for cutting all types of softwood, hardwood and plywood . . . saws that are said to stay sharp up to 300 times longer than solid tooth saws. All standard and stock sizes of carbide tipped, rip, cut-off, combination, easy-cut, dado and groover Saws are listed. Ask for Catalog "C".

In addition, this catalog gives helpful hints on the care and use of these saws and tells how to select the right saw for the job and shows some typical applications. Detailed suggestions are included on how to obtain smoother cuts in glue joint ripping operations.

"Du Pont . . . an American Enterprise"

The E. I. Du Pont De Nemours & Co., Wilmington, Del., has just published a new book entitled "Du Pont —The Autobiography of an American Enterprise". This new volume, prepared in connection with Du Pont's 150th anniversary July 18, traces the company's role in the growth and

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development of the Nation. Pictures and text sketch the broad United States social and economic patterns of the last century and a half, underscoring the company's advance to satisfy the country's expanding needs. The book is being distributed primarily to employees and stockholders.

A Decade of Forestry Progress

A decade of progress in practical forest management is measured in the annual report for 1951, published by American Forest Products Industries, Inc., Dept. W, 1319 18th St., N. W., Washington 6, D. C.

The 16-page report gives special attention to the work of forest industries in providing accurate and objective teaching aids for the Nation's schools. Another section of the report covers forest industry activities in the field of public relations.

Marking Guides for Hardwoods

Guides for use in deciding when to cut southern upland hardwoods have been issued as Occasional Paper 125 of the Southern Forest Experiment Station. The authors are Joseph L. Burkle and Sam Guttenberg.

The paper discusses southern red oaks, white oaks, and yellow-poplar, and the chief products into which these species are cut, except for tight cooperage bolts and face veneer logs.

Copies are available at the Southern Forest Experiment Station, Dept. W, 704 Lowich Building, New Orleans 13, La.

New Shaper Bulletin

A new, 8-page brochure illustrates and describes the entire standard line of Ekstrom, Carlson Hi-Speed Shapers. Included in the circular are the No. 160 Combination Shaper-Router, No. 162 Single Spindle Hi-Speed Shaper, and the No. 262 and No. 366 Double Spindle Hi-Speed Shapers. Also pictured are several special adaptations built around standard Ecco Shapers. Complete information, together with specifications, in the form of the above circular, can be obtained by writing Ekstrom, Carlson & Co., Dept. W, 1409 Railroad Ave., Rockford, Ill. Ask for Bulletin No. S100.

Walnut Veneer Types

A new guide and set of standard specifications for the selection of walnut veneers has been distributed to architects, decorators, furniture manufacturers, and others who specify cabinetwoods for furniture or architectural woodwork.

The booklet shows all principal figure types of American Walnut now available in quantity—some in hundreds of thousands, other types in millions of feet. Each of the numerous plates has a number, to be used in specifying that figure type. Thus the designer can order from the plywood supplier and he, in turn, can order from the veneer firm, without possibility of error.

Copies of the booklet may be obtained from the American Walnut Manufacturers' Association, Dept. W, 666 Lake Shore Drive, Chicago 11, Illinois.

Veneer Press Frames

"How to Make Low-Cost Veneer Press Frames" is the title of a new publication which provides detailed instructions on the construction and use of veneer press frames. In addition to diagrams and other information on frame sizes, the bed and cauls, open-side construction, and other details, the publication has a section explaining why a veneer press saves time and money. Copies may be had by writing the Adjustable Clamp Co., Dept. W, 417 N. Ashland Ave., Chicago 22, Ill.

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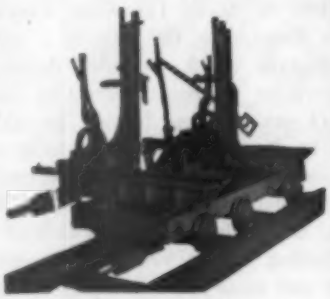

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Sawmill Carriage
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TIMKEN Wheel Bearings

ROLLER BEARING
CARRIAGE WHEELS

The Enterprise Company
BUILDERS OF
MACHINERY SINCE 1878
COLUMBIANA, OHIO

Production Setup

(*continued from page 27*)

clear lacquer or plastic materials.

Because they are comparatively inexpensive, clear lacquer finishes are preferred in finishing articles which require no more than protection of the grain against scratches or mars. Acrylic and related types of clear-plastic finishes are specified when properties such as waterproofness are necessary to protect the molded-wood surfaces of articles such as salad bowls.

In addition to serving as a "job shop" for other manufacturing organizations, the Glenwood company now produces a proprietary line of household utilities sold through retail outlets throughout the United States.

It is difficult to compare the firm's fabrication costs with the manufacturing expenditures of competitive organizations, since competitive companies produce few completely-analogous products. However, customers have reported that—in the light of cost estimates for job shop contracts—Glenwood prices are lowest by a varying margin of 10 to 50 per cent.

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Appalachian hardwood News

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Telephone 186

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MILLETT HARDWOOD LUMBER Co.

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313 Columbia Bldg

Louisville 2, Ky.

Telephone Clay 2500

New Ceiling Prices Announced

On page 7 appears an item announcing the new ceiling price regulation, CPR 151, for Appalachian hardwood lumber, recently issued by the Office of Price Stabilization. The ceilings apply to operators of sawmills, planing mills, and concentration yards in the Appalachian hardwood region.

The regulation does not cover flooring, hand rails, mouldings, step treads and threshholds, or sawn timbers, such as cross ties, mine ties, switch ties, mine material, navy oak ship stock, and small dimension stock. These items are subject to other regulations.

This regulation spells out dollars and cents base ceiling prices f.o.b. mill per 1,000 board feet for random widths and lengths of 18 species of hardwood commonly cut in the area, rough, air-dried, and green, of grades First and Seconds (FAS), First and Seconds One Face (FAS 1 Face), Saps, No. 1 Common, No. 2 Common, Sound Wormy, and No. 3 Common.

Until a regulation is issued which is made applicable to the services involved, ceiling prices for lumber that is planed, resawn, or kiln-dried are determined by adding to the published ceilings for air-dried rough lumber the highest amount or amounts added to the air-dried lumber prices to purchasers of the same class for such services during the period January 25 through February 24, 1951.

Various differentials are prescribed which are applied to the base ceiling prices to determine ceilings for mixed carload shipments, less than carload lots, stenciling or grade-marking, bundling, special loading, anti-stain treatment, and other items.

Freight Zones Defined

Manufacturers are grouped into four freight zones, determined by the amount of the rail freight from the point of origin to Cleveland, Ohio, as follows: Group 1, 60 cents or more per hundredweight; Group 2, 53 cents up to 60 cents; Group 3, 46 cents up to 53 cents.

THE MOWER LUMBER COMPANY

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VESTAL LUMBER & MFG. CO.

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West Virginia Hardwoods, Inc.

Manufacturers & Wholesalers
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Kenova, W. Va.
Telephone 2171

Code: 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 29, 30, 31, 32, 33, 35, 36, 37, 39, 40, 41

J. WALTER WRIGHT LUMBER COMPANY

Manufacturers & Wholesalers
LUMBER
UNION TRUST BUILDING
BRISTOL, TENN.

Code: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20, 21, 23, 25, 26, 27, 29, 30, 31, 32, 34, 35, 36.

CODE . . .	
1 Bandmill	22 Sycamore
2 Resaw	23 Walnut
3 Circular Mill	24 Others
4 Planing Mill	25 Hemlock
5 Dry Kilns	26 Pine-White
6 Ash	27 Pine-Yellow
7 Basswood	28 Spruce
8 Beech	29 Oak Planking
9 Birch	30 Oak-Car Stock
10 Buckeye	31 Oak-S.S.E.
11 Butternut	32 Oak-Truck Body
12 Chestnut	33 Oak-Timbers
13 Cherry	34 Cross Ties
14 Gum-Black	35 Oak Flooring
15 Hickory	36 Maple Flooring
16 Locust	37 Beech Flooring
17 Maple-Hard	38 Dimension Semi Fin. & Fin.
18 Maple-Soft	39 Dimension Rough
19 Oak-Red	40 Stepping Pl.
20 Oak-White	41 Mouldings
21 Poplar	42 Others

Light Boxes Handle Heavy Loads

Proper design can cut weight of crating while giving load better protection.

Proof that heavy shipping containers are not necessarily the answer to packing heavy commodities is given by the Stevens Fire Brick Co. of Macon, Ga., which ships fragile and heavy fire bricks, tiles, and other special refractories all over the world.

The company ships as much as 640 pounds of refractories in a wirebound crate that weighs only 32 pounds, or only five percent as much as the load with which it is packed.

This relatively light-weight crate has practically eliminated shipping damage and pilferage and has cut packing costs by at least 25 percent, partly by trebling the packing capacity of unskilled workers.

Ontil about two years ago, the Stevens Fire Brick Co. made its own heavy wooden nailed crates for export. Despite the heaviness of the crates shipping damage due to container failure was frequent.

Then the company consulted trained shipping container engineers and, as a result, converted to the use of scientifically designed machine-made wirebound crates specifically created for carrying the company's heavy refractories in export and domestic shipment.

This successful wirebound crate consists of only three parts—the two nailed-in ends and the one-piece wirebound "mat" that comprises the four sides of the crate and is easily and quickly folded into shape. "Mats" and crate ends are stacked ceiling-high in a minimum of floor space before use.

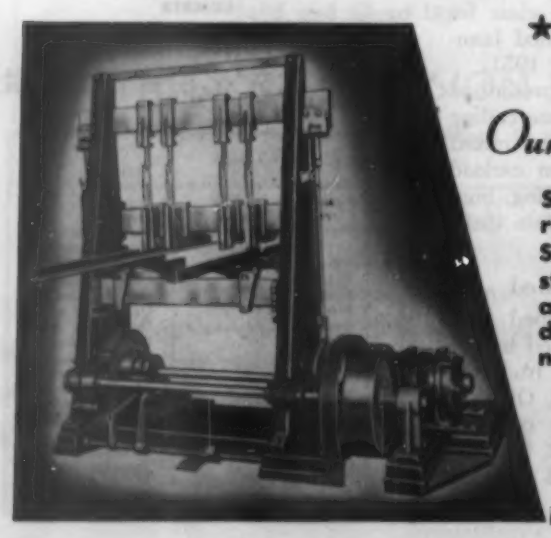
(*Continued from page 28*)

speed drive manufacturers' catalogs, which give the driven speed ranges when two variable speed sheaves are used, the plant engineer found that a drive using a 5.5/6.9-inch diameter sheave and a 10.0/11.4-inch pitch diameter sheave (Sketch II) would give a speed range of from 845 to 1206 rpm on the driven machine. This adequately met the requirement for speed changes in a 900 to 1200-rpm range. Cost of this unit, including the motor, double variable speed drive, and handle control would be $790.82, or a $347.51 saving over the speed changing unit initially selected. And the lower priced unit would still fill all the user's requirements. A further saving would be possible if it were unnecessary to vary speeds while the drive was in motion. Then the cost of the unit would have been only $502.33.

Thus, wherever speed change is required, it is well to weigh the needs of the specific machine and the results obtained.

Short-cuts with Staples

It will pay you to investigate the many applications of St. Joe Staplers, and how they are simplifying the many complex fastening problems that confront industry today.



Our 75th Year

Saving through short-cuts in production . . . savings in materials. One of the many examples is the St. Joe Flatwork Stapler, designed to turn out sides, tops and bottoms for standard fruit and vegetable containers and industrial crates and pallets. Prove to yourself what "St. Joe" Staplers can do—send for bulletins and technical data on your needs—no obligation. Write us today!

ST. JOE MACHINES, INC.

ST. JOSEPH, MICHIGAN

Furniture

(continued from page 31)

facer

Facing and surfacing are done in seperate operation because more accurate work can thus be achieved on pieces that are slightly cupped or warped.

From the surfacer, the blocks move up on an endless belt to a point where two workmen transfer them to a company designed sorting device which eliminates stacking rough dimension stock on factory trucks—with consequent traffic jams around machines.

The sorting device consists of a group of narrow, parallel belts. Each belt leads to one of the battery of rip saws. The blocks are fed onto a table which is convenient to the rip saw operator. Simply by dropping the blocks of dimension into the proper slots, the sorters can keep each rip saw operator supplied with material.

It is obvious from the diagram that the key parts of the this material handling system must be kept in constant operation or the whole line will be stopped. Also, material must be carefully scheduled from the woods right through the dry kilns and into the plant.

On the other hand, Col. Robert Morgan, who was instrumental in designing the layout, says that material handling costs have been cut substantially and that use of the system has actually helped to improve scheduling.

Next month a second article will illustrate the quality control system used by Morgan Manufacturing Company.

Finishes

(Continued from page 39)

of oak and walnut was also considered. These factors, together with tightness of face veneer and quality and type of finish, were the major variables involved in the preparation of the additional experimental test panels.

Since the formation of checks, as normally thought of, had not occurred in either constant conditions of high humidity or low humidity, a major portion of the second group of prepared panels was alternately subjected to longer periods of each of these conditions. The panels were allowed to reach weight equilibrium in one condition of humidity before changing to the opposing humidity condition.

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